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EDITORIAL

METCHNIKOFF.

The passing of Metchnikoff is more than an incident in the history of medicine; it marks an epoch which began with the later work of Pasteur. The mantle of Pasteur's endeavor really fell on Metchnikoff's shoulders, for he alone stood for the traditions of the *Institut*, which graduated Phisalix, Roux and other brilliant scientists, who removed to other fields of effort. Even while Pasteur was yet alive, in the decade before his death, Metchnikoff and Roux were engaged in training younger men from many countries, and the inspiration derived from the triple instruction has carried far.

A number of the present generation of New Orleans physicians remembers the careful teaching of Metchnikoff, whose quiet but impressive method never failed to carry conviction. His philosophies have influenced medical thought for nearly a generation and his conclusions now color accepted theories in practise as well as in the laboratory.

When the history of medicine for the current period will have been written, Metchnikoff will survive among the great geniuses directing the thought of his time. He may have failed to profit by his theory of living to old age—but how many are overtaken before their labor bears its ripest fruit.

No memorial of Metchnikoff can be written without the tribute to his unselfishness in the field of science which claimed him at all times; to his loyalty to the *Institut*, which nurtured his genius; to his modesty, which survived his successes.

To those of us, who had a personal contact with Metchnikoff on more than one occasion, there comes a sense of loss, which grows with the reflection that in the midst of so glorious a career, there should have been so sad an occasion for the passing.

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

The National Board of Medical Examiners announces its first examination to begin October 16, 1916, in Washington, D. C. The examination will last one week and is open to graduates of Class A medical schools, who have had one year of acceptable hospital intern service. Other details may be had from the secretary, Dr. J. S. Rodman, 2106 Walnut street, Philadelphia.

Rather general notice has been taken of this National Board, founded by the late Wm. L. Rodman, and furthered by him up to his untimely death. The purposes of the Board are so high, that the support of the entire profession should be given to it. The sole aim is to provide a standard examination for medical graduates which shall be of such a character as to deserve and to obtain recognition everywhere. The Army and Navy Departments have already signified the intention of accepting the certificate of this board as satisfying the examination usually required by them and a number of states have authorized the examining boards to accept the certificate of the National Board for registration, without further examination.

The purposes of the board are wholly untrammeled by any monetary difficulties as the Carnegie Foundation has provided for the expenses of operation.

This makes the examination of candidates almost an honorary and academic procedure, for no fees are charged for the examination itself, a registration fee of $5 alone being required.

The lack of uniformity in State board examinations—no matter how thorough some of them may be—makes reciprocity a doubtful procedure, with a standard examination, based upon the highest sort of requirements and conducted with a thoroughness which may be compared only with the examination of the English Conjoint Board for the Royal Colleges, the basis for qualification in the United States must in time come up to a high plane.

PREVENTION OF INFANTILE PARALYSIS.

The widespread incidence of poliomyelitis in this country and the development of an epidemic focus in New York has occasioned much concern over the whole country.

State Boards of Health are active in keeping track of the sporadic cases, with a view to preventing the spread and the public generally is being instructed in matters related to this object.

A conference of prominent scientific and laboratory men from various centers met in New York during the week ending August 5, and outlined methods of investigation which might lead to a better knowledge of the disease itself. Another conference of State health officials and the U. S. P. H. S. was called for the latter part of August with the idea of reviewing the situation.

Such activity in the face of a threatened pandemic is highly commendable and should prove fruitful of result.

Meantime little progress has been made in the way of curing the disease. Most cases have been seen too late to make the Flexner serum of any service. Returns on the use of adrenalin are not yet in, so that no conclusions are yet warranted. The interest in the whole question is acute, both in lay minds and among medical men. The advice, therefore, coming from the

Public Health Service in a recent bulletin is timely and deserves extended notice:

"Infantile paralysis is probably caused by a very minute organism found in the nasal, mouth and bowel discharges of those who have the disease or who are carriers of the germ without themselves suffering from the ailment. All of the steps in the spread of the infection are not known but if this germ can be prevented from passing from the infected to the well person, the disease will cease.

"Infantile paralysis is not a disease of recent origin. Sporadic or scattered cases have occurred throughout the country for many years but is is only during the last decade that the infection has assumed epidemic proportions in the United States. The present epidemic in New York City, on account of its magnitude and virulence, has awakened the residents of many communities to the danger of the importation of the disease into their own midst. This danger is real, but if due precautions are exercised it is believed that the epidemic will subside.

"The actual control of the present epidemic must be left to the city, State and Federal health authorities. These organizations will properly quarantine and care for affected persons, prescribe sanitary measures and limit as may be necessary the travel of individuals in order to protect neighboring districts from the infection. Individuals and communities, however, can do much toward their own protection.

"Poliomyelitis is probably spread directly or indirectly, through the medium of infective secretions. Account must therefore be taken by communities of every means by which such secretions are disseminated. Promiscuous expectoration should be controlled. The common drinking cup affords a method for the interchange of material of this nature and should therefore be abolished. Rigid cleanliness of glasses and utensils at soda fountains, in saloons and other public places should be enforced. Flies, roaches and other vermin, by coming in contact with infective scretions, may possibly convey them to our food and thus directly bring about the development of disease. Therefore eliminate insects. Street and house dust bear a definite relation to the spread of many infections and it is not unreasonable to presume that they may be a factor in the dissemination of infantile paralysis. Maintain strict cleanliness of streets, yards and alleys in order to prevent the breeding of insects and other vermin.

"See that all garbage and waste are properly cared for and collected at regular and frequent intervals. Guard all food supplies, especially milk and other perishable products. Digestive troubles of children arising from the ingestion of food of questionable quality may lower resistance. Assemblies of children in infected localities are to be discouraged, if not actually forbidden. While the above measures are in a sense general, and applicable to many epidemic diseases, their importance should not be overlooked.

"A child may convey the disease to others even after a lapse of several weeks. For this reason quarantine should be maintained for a considerable period, usually from six to eight weeks, and should be adhered to during this time. Disinfection of the room following recovery is advisable."

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

DISEASE AND DEATH RATE IN HUMAN TYPES.

By ROBERT BENNETT BEAN, B. S., M. D.

(From the Anatomical Laboratory of the Tulane University of Louisiana).

Looked at in broad groups, the Hyper-ontomorph and the Meso-ontomorph, presently to be described, are the extreme forms of the white peoples, and the average individual, or normal person, is intermediate between the two. The physician will meet more of the extreme forms in practice and the hospitals will be filled with them, therefore it may be well to describe these two extreme types of the white people in some detail.

The Hyper-ontomorph is an undersized individual, about five feet six inches or less in height, thin, with long, narrow face and pointed chin, long, narrow, high nose, small, thin, long, narrow ears with everted tragus, antitragus and anthelix, and deficient helix that is turned back towards the head. The trunk is long and slender, the chest thin from before backward, and the abdomen flat or depressed. The arteries and veins are thin and elastic, with sclerosis only in the aged, and the kidneys are unusually good. The brain is large relative to the size of the individual and the cerebellum is small and has few simple convolutions. The pons is also small. The type is not muscular, the bones and muscles are small and thin.

The Meso-ontomorph is of medium size, about five feet eight inches or more in height, heavy, with oblong or oval face, rather broad, but high nose, almost flat ears that are large and broad, with moderately everted tragus, antitragus and anthelix, and large helix. The trunk is broad and thick, the abdomen full or protuberant. The arteries and veins are thick and inelastic, liable to early sclerosis and the kidneys are very bad. The brain is small relative to the size of the individual, and the cerebellum is large and has many intricate convolutions. The pons is also large. The type is stockily built, muscular, with large bones and muscles.

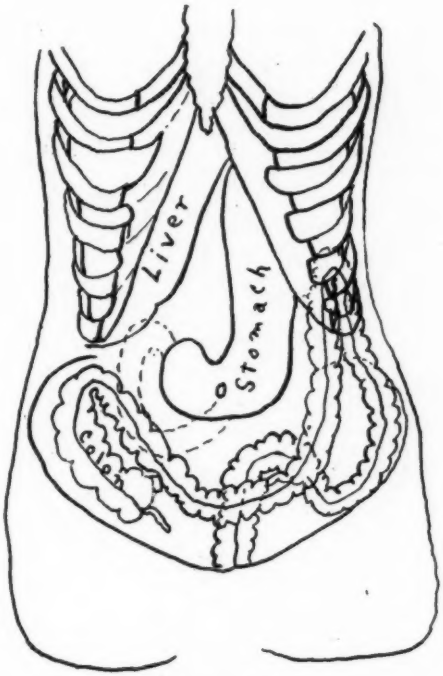
The Alimentary Canal and Viscera in the Hyper-Ontomorph and the Meso-Ontomorph (Percy Brown).

Certain fixed points of the alimentary canal vary in their position and security of attachment due no doubt to the time and extent of their fixation in prenatal life. The chief of these fixed points are the cardiac orifice of the stomach where the esophagus comes through the diaphragm, the pyloric orifice of the stomach, the junction of the duodenum and jejunum, the hepatic and splenic flexures of the colon. Some of these points become fixed early in prenatal life, others late. The latter, which are the pylorus, the junction of the duodenum and jejunum, and the hepatic flexure of the colon, are related to the rotation of the stomach to the right, and the formation and fixation of the intestinal loop. They are apparently more unstable than the others, and when they become fixed early they differ from when they become fixed late. The one represents the Hyper-ontomorph, the other, the Meso-ontomorph. In the Hyper-ontomorph the stomach is small, vertical, low—often below the umbilicus—, J shaped, and on the left side; the liver is small, low, almost vertical, and far to the right; the hepatic flexure of the colon is low, often lying entirely in the right iliac fossa, the splenic flexure is high and shares the dome of the diaphragm with the stomach, the transverse colon hangs far down, often in the pelvis, in the form of a long loop, and the small intestine is unusually short, often only 10 to 12 feet in length. The sigmoid flexure of the colon is often long and reaches the umbilicus.

In the Meso-ontomorph the stomach is large, diagonal or transverse oval, high, and partly on the right side; the liver is large, high, diagonal or transverse, and partly on the left side; the colon is high, both flexures are about on the same level, the transverse colon is short and high with a small loop; and the small intestine is very long, frequently about 30 feet in length.

Measurements of the length of the small intestine have been made, and although the lengths are only approximate because of the difficulties in measuring, the liability of the intestine to stretch or contract, and the pathological conditions that may alter the length, yet the differences in the types are fairly constant, quite evident in many cases, and the correlation of length of intestine and type is positive. The length of the small

intestine in 35 Hyper-ontomorphs is 16.38 feet, the shortest 10 feet, the longest 30. The length in 47 Meso-ontomorphs is 22.9 feet, the shortest 12 feet, the longest 33 feet. The length in 49 mixed Meso-Hyper is 21.4 feet, the shortest 12 feet, the longest 30 feet.



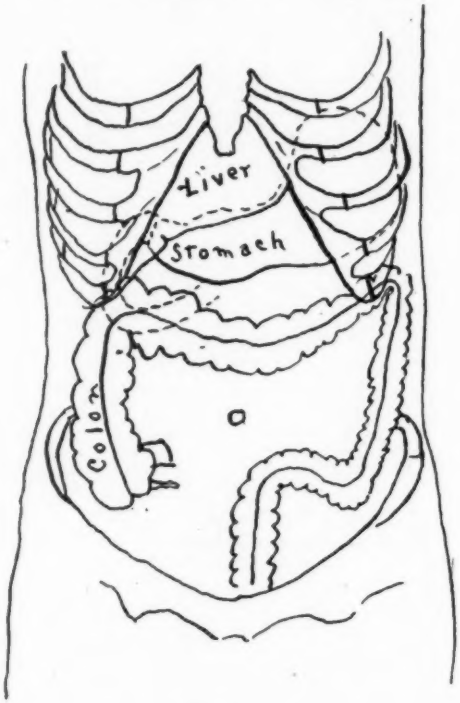
Hyper-ontomorph.

Table 1. Length of the Small Intestine in Feet.

	10-14	14-18	18-22	22-26	26-30	30-34
Hyper	9	13	6	6	..	1
Mixed	2	13	19	6	7	2
Meso	1	7	11	16	7	4

The anatomical position of the stomach and colon in the Hyper-ontomorph renders the passage of food difficult, and favors the dropping of the viscera, splanchnoptosis. In fact the normal position of the viscera in this type is a mild form of splanchnop-

tosis. The stomach is down to about the umbilicus, the transverse colon is below the umbilicus, the liver is almost down to the crest of the ilium, the hepatic flexure of the colon is in the right iliac fossa, and the small intestine is largely in the pelvis. When food enters the vertical stomach, especially if in too large amounts, the tendency is for the pylorus to be carried down by the weight.



Meso-ontomorph.

Diagrammatic outlines showing the relative positions of the liver, stomach and colon in the hyper-ontomorph and meso-ontomorph.

To pass into the duodenum the food has to be forced uphill. In its further transit through the small intestine from the pelvis the food must again be forced up into the colon. It has a short climb in the ascending colon to the hepatic flexure where it again descends to the pelvis in the transverse colon, after which it has the longest climb of all to the splenic flexure. It then passes

down through the descending colon when it may finally have a long, hard, uphill passage through the sigmoid flexure before it reaches the rectum to be evacuated (see plates). There is apt to be stasis at several points, in the stomach, in the ascending colon, in the transverse colon, and in the sigmoid flexure. The food does not stay long in the small intestine because this is short and very active in the Hyper-ontomorph, therefore the small intestine

Copy of X-ray.

plays a small part in alimentation of this type. In the average individual absorption of food takes place largely in the small intestine, and the large intestine absorbs chiefly water, therefore it is evident that the food of the Hyper-ontomorph must be highly nutritious and thoroughly prepared in order to be of the greatest value. A diet of meat, eggs and milk with small amounts of ripe fruits and vegetables, and nuts, thoroughly masticated, is to be desired for this type. Great care must be taken not to overload

the stomach thereby producing gastroptosis and stagnation in the stomach with hyperacidity.

The position of the viscera in the Meso-ontomorph does not lead to grave digestive disturbances and diseases due to malnutrition, but to a plethora or too abundant nourishment, when taken in large amounts. The stomach in the Meso-ontomorph is almost transverse, high above the umbilicus, and the pylorus is almost on a level with the fundus, the liver is wholly under the ribs on the right but extends over to the left and may separate the stomach from the heart, and push up the latter organ and the lungs, the hepatic and splenic flexures of the colon are about on the same horizontal plane, the transverse colon is only slightly if at all depressed by the stomach, and the sigmoid flexure is neither high nor long. The small intestine is very long. It is also large and its great size may help to keep the other viscera high, especially because it is sluggish in action and the food stays in it a long time. As absorption is most active in the small intestine the food of the Meso-ontomorph should be of a bulky nature and not very nutritious. Fruits and vegetables should form a large part of the diet, with the additon of well cooked meat without its juices. The plethora induced by overfeeding of too rich food in this type causes disorders of the kidneys and heart to which this type is peculiarly liable, and induces changes in the arteries and veins leading to arterio-sclerosis. Resistance to acute diseases is lowered and death from pneumonia and typhoid fever is common with this type.

Goldthwaite[4] has given a resumé of these two contrasting types from the clinical standpoint, of the Hyper-ontomorph as splanchnoptic, congenital visceroptotic, carnivorous, macroscelous, and narrow-backed, and of the Meso-ontomorph as herbivorous, broad-backed, and brachyscelous to which may be added plethoric, and apoplectic.

Bryant[3] has made statements based upon personal observation of the work of others that demonstrate about 140 clinical differences between the carnivorous and herbivorous types of men. So far my studies have confirmed his in many differences between the Hyper-ontomorph and Meso-ontomorph. Some of the confirmations will appear in the present work. Before proceeding I wish to emphasize the desirability of uniform terms for the two types to be discussed. Hyper-ontomorph and Meso-ontomorph

are to be preferred because they represent the type in evolution, development and anatomical structure. Epitheliopath and Mesodermopath have a meaning from the clinical and pathological point of view, and carnivorous and herbivorous from a popular and dietetic standpoint.

The tuberculous, the scrofulous, the cachectic, the leper, the pellagric are effects of the type, and so is the carnivorous habit.

The plethoric, the dropsical, the apoplectic, the broad-backed, the cardiac, the nephritic are effects of the type and so is the herbivorous habit.

The conditions are due to epithelial and mesodermal susceptibilites as a result of the Hyper-ontomorph or Meso-ontomorph type, as will be demonstrated presently. The last two terms are therefore preferable to the others.

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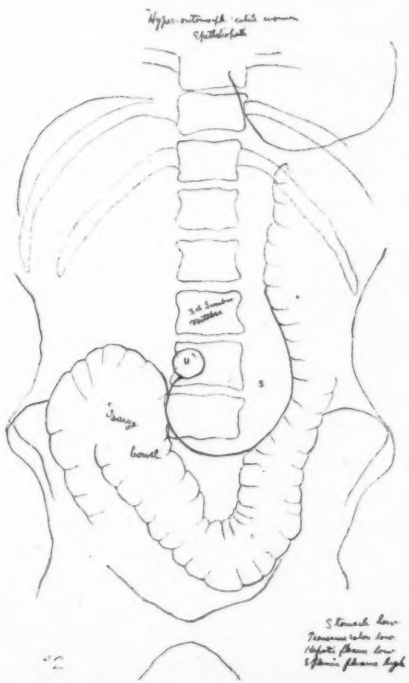

My attention was called to the structural differences between the two types while in the Philippine Islands, in 1908, although I

had noticed the external differences, especially of the ear, previous to this. The discovery occurred in the following way: All unclaimed bodies in the city of Manila are brought to the Medical Department of the University of the Philippines where they are utilized for anatomical and pathological purposes. For the former I selected the thin subjects because they dissect more readily and take injections better. Post mortem examination revealed that these had usually died of tuberculosis, their arteries were elastic and free from signs of sclerosis, and their connective tissues, bone and muscle were slender and fragile. Such subjects were invariably of the Hyper-ontomorph type. At that time I associated the type with susceptibility to tuberculosis, but since then I have discovered that all the epithelial tissues seem to be more liable to disease, especially the alimentary canal, skin, and central nervous system. The Meso-ontomorph on the other hand is more susceptible to diseases of the mesodermal tissues, especially to diseases of the heart, vessels and kidneys.

The basis of susceptibility to disease is founded on the two fundamental embryonic tissues, epidermal and mesodermal. In man after the segmentation of the ovum there are two layers, the ectoderm and the mesoderm. The endoderm develops from the ectoderm, and from these two there develop the epidermis and its appendages, hair, nails, epidermal glands and the enamel of the teeth; the epithelium lining the mouth, nasal cavity, digestive tract in general and its associated glands such as the liver and pancreas; the epithelium lining the larynx, trachea and lungs; the nervous system and the nerve elements of the sense organs including the lens of the eye; and the epithelium of the urethra and bladder. From the mesoderm there develop the connective tissues including bone, and the teeth, except the enamel; the muscles striated and non-striated; the circulatory system including the blood itself and the lymphatic system; the serous membranes of the body; the kidneys and the ureters, and the internal organs of reproduction. Thus all the structures of the body are formed from the two tissues, epidermal and mesodermal. Epithelial structures may arise from mesodermal tissues, as, for instance, the serous membranes of joint and body cavities, therefore the term epithelial diseases will be used to indicate diseases that attack specifically epithelial structures. The term mesodermal diseases will be used for diseases that attack all structures

derived from the mesoderm except epithelial structures so derived.

The incidence of disease and type will be presented in relation to specific diseases beginning with tuberculosis.

Epithelial Diseases.

TUBERCULOSIS. After having determined that the Hyper-ontomorph is susceptible to tuberculosis by the post mortem examination of about 100 individuals in the Manila Morgue (1), I tested this for the living at Taytay, a town near Manila, where a complete biological survey was made of all the people of the place. My observations in the temporary hospital there were limited to a few hundred individuals, but this was sufficient to confirm previous observations. Incidentally observations were made relating to other diseases which will be given later. In the morgue 70 per cent of the Hyper-ontomorphs were found to have died of tuberculosis, and about 30 per cent of the Meso-ontomorphs also. At Taytay the following ratios of the incidence of disease and type were found:

	Lung	Circulatory	Kidney	Others
Hyper-ontomorph	50.9	13.1	0.0	19.0
Meso-ontomorph	37.7	9.4	8.3	21.1

Here it is clear that the Hyper-ontomorph is susceptible to lung trouble and is immune to kidney affections. It was here that the thought came to me that one type might be more susceptible to kidney diseases than the other, and the one susceptible to kidney disease is more or less immune to tuberculosis and vice versa.

After this about 100 more post mortem examinations were made in the Manila morgue, and it was found that of the 30 Hyper-ontomorphs 56.6 per cent had tuberculosis, and of the 61 Meso-ontomorph 8.2 per cent had tuberculosis. This was determined by using the ear type alone regardless of any other physical characteristics. Before leaving the Philippine Islands, I went to Bilibid prison, which is the penitentiary for the archipelago, and classified the ears of the patients in the ward for pulmonary tuberculosis. Sixty per cent were Hyper-ontomorphs and 40 per cent were Meso-ontomorphs.

Upon my return to the United States in 1910 my study of the types was continued in New Orleans and elsewhere as oppor-

tunity offered. At the Touro Infirmary and the Charity Hospital I have made a detailed study of the incidence of disease and type for several years. All of the physical characteristics of the individual are utilized in the differentiation of the types in these studies.

Only two individuals of the 134 afflicted with tuberculosis showed no trace of the Hyper-ontomorph form, although some of them were not of the pure type. The post mortem examination of 47 individuals with tuberculosis showed 41 Hyper-ontomorphs and 6 Meso-ontomorphs. The form which I call the Hyper-phylomorph seems to be susceptible to tuberculosis, but very resistent to a fatal issue with the disease. This type is tall, rawboned, with large face, long and broad, prominent cheek bones, large nose and long, large ears.

Individuals with kyphosis are invariably of the Hyper type if we may judge by the 61 individuals noted with this affliction, 59 of whom were Hyper-ontomorphs and 2 partly Hyper-ontomorphs.

The prevalence of tuberculosis is due not only to the almost universal distribution of the germ, and to unhygienic surroundings, but also to the type of the individual, and the presence of the Hyper-ontomorph may account for the failure of the campaigns to completely eradicate tuberculosis.

Pellagra. Pellagra is a disease with lesions of the skin, alimentary canal, mucous membrances and central nervous system, an epithelial disease. It has been on the increase in the United States at an alarming rate in recent years, so much so that it has been the subject of varied investigations and legislation, and no little worry to health officers and others because its etiology has been in dispute. Diet is no doubt a factor in its cause and in its cure, and there must be some reason why forced feeding is efficient in treating the disease. I hope to furnish the reason.

It was my good fortune to stay in New Orleans during the summer of 1915, and to examine the patients at the Charity Hospital ill with pellagra during the epidemic which comes each year in the early summer. In all, I have examined but 55 cases, 13 of which were examined post mortem, but there is such a preponderance of the Hyper-ontomorph that the few are sufficient to justify the assertion that this type is susceptible to pellagra, and that the presence of the type in any large numbers in the popula-

tion is an impotrant factor in the prevalence of the disease. Of the 55 cases examined, 49 are Hyper-ontomorphs, the majority of whom are pure, although some are mixed, 5 are partly Hyper-ontomorphs and 1 is a Meso-ontomorph.

There can be no doubt that the Hyper-ontomorph is more susceptible to pellagra than are the other types, and this is in line with expectations. Pellagra attacks the epithelial tissues, therefore the Hyper-ontomorph is the one to suffer. It is needless to dwell on the symptoms of the disease.

The conditon is one of toxemia with especial predilection for involvement of the central nervous system, lungs, and alimentary canal. The skin lesions are almost invariably present. The pathological picture is one of infection or inflammation, which affects the epithelial tissues more than it does the mesodermal tissues. The disease has been transmitted through the monkey by Harris[5], and although this has not been repeatedly verified by many workers, yet there seems to be strong evidence of some active agent in the transmission of the disease.

In pellagra, as in tuberculosis, leprosy and carcinoma, there are three factors. The farmer finds it essential to have the soil, the seed, and the weather, so in certain diseases it is essential to have the susceptible type of individual, the germ of the disease, and the environment. In the case of the four diseases just mentioned it is becoming more and more evident that all the three factors play a part in the production of the disease. The reason why diet is so important a factor in the cause and in the cure of these diseases—and this is especially true of pellagra (Goldwater)[7]—is because of the nature of the alimentary canal in the Hyper-ontomorph who is so susceptible to the disease. It is necessary only to call attention to the short, small intestine, the long obstructed colon, and the low stomach.

Presentation of records for carcinoma may be very brief. Only 15 cases of carcinoma of the stomach or bowel have been seen post-mortem and every one of the individuals was a Hyper-ontomorph. There can be only one conclusion, the Hyper-ontomorph is susceptible to gastric carcinoma. It is becoming increasingly evident that diet plays a role in carcinoma (Rous[6]) and it may be decided that proper diet may prevent, alleviate and possibly cure cancer.

The Hyper-ontomorph is susceptible to other diseases of the

alimentary canal as the records from Manila, Taytay and New Orleans demonstrate. For instance, at Taytay alimentary diseases occurred in the ratio 5 in the Hyper-ontomorph to 1 in the Meso-ontomorph. Post-mortem examination of 13 cases of chronic inflammation of the alimentary canal were examined, all of which were Hyper-ontomorph, although 2 were mixed. In the records from New Orleans the disease of the alimentary canal were the following: stomach 14, diarrhea 6, typhoid fever 5, appendictis 2, and intestinal parasites 4. All are Hyper-ontomorphs except one, although some of them are mixed types. These are few cases for final judgment, but the uniformity of results indicates susceptibility on the part of the Hyper-ontomorph for diseases of the alimentary canal.

Mental and Nervous Diseases. Only nine post-mortem records were obtained in Manila with diagnosis of diseases of the central nervous system, 7 insanity, 1 epilepsy, 1 myelitis, of which 7 were Hyper-ontomorphs, 2 Meso-ontomorphs. At the Touro Infirmary and Charity Hospital, 82 cases of diseases of the central nervous system were examined; neurasthenia, 33 cases, paralysis 18, oxophthalmic goiter 12, insanity 6, epilepsy 5, tabes dorsalis 2, angioneurotic edema 2, sclerosis 1, herpes zoster 1, hysteria 1, and torticollis 1. Of these 75 are Hyper-ontomorphs, 6 Meso-ontomorphs. Notable is the fact that all the insane and all with exophathalmic goiter are Hyper-ontomorphs.

Mesodermal Diseases.

Heart Disease. From the records at Taytay there were 22 cases in which the heart was affected, 21 of which were Meso-ontomorphs and 1 a Hyper-ontomorph. In the morgue at Manila 23 cases of heart disease were examined, all but one of which was a Meso-ontomorph. In New Orleans 92 individuals were diagnosed with heart and kidney disease, and of these 81 were Meso-ontomorphs and 11 Hyper-ontomorphs. Of the latter 4 are advanced in age beyond 50 years. Among about a hundred post-mortem examinations in New Orleans, 32 showed heart lesions, of which 29 were Meso-ontomorphs and 3 Hyper-ontomorphs. There can be no doubt that the Meso-ontomorph is susceptible to heart disease.

Arteries and Veins. At the Touro Infirmary and Charity Hospital 24 cases of arterio-sclerosis were Meso-ontomorphs and

11 Hyper-ontomorphs. The majority of the latter were beyond the age of 50 years. Besides these 15 Meso-ontomorphs had aneurism and 2 Hyper-ontomorphs also. Seven post-mortems of mesodermopaths showed dilation of the aorta.

KIDNEY DISEASE. Chronic nephritis alone will be considered in this connection. In the morgue at Manila 23 cases of kidney diseases were examined, 21 of which were Meso-ontomorphs and 1 a Hyper-ontomorph. At the Touro and Charity Hospitals in New Orleans 92 individuals were diagnosed with heart or kidney disease, of which 81 were Meso-ontomorphs and 11 Hyper-ontomorphs. Post-mortem examination of 17 individuals with cardiac or renal trouble give 15 Meso-ontomorphs and 2 Hyper-ontomorphs. Finally at the Charity Hospital 16 Meso-ontomorphs and 8 Hyper-ontomorphs examined post-mortem had chronic nephritis. There can be no doubt that the Meso-ontomorph is susceptible to disease of the kidneys, especially to chronic nephritis, or Bright's disease.

A review of the hospital and morgue cases examined previous to 1915 shows a grand toal of 1,002 living individuals of whom diagnosis was made, and 317 post-mortem examninations, of whom 699 were Hyper-ontomorphs and 620 Meso-ontomorphs. Of the former 402 or 57.5 per cent had diseases of the lungs, alimentary canal, nervous system or joints, epithelial structures, and only 30, or 4.2 per cent had diseases of the heart, kidneys, arteries or veins. Whereas of the 620 Meso-ontomorphs, 187 or 30.1 per cent had diseases of the heart, kidneys, arteries, or veins, and only 45 or 7.2 per cent had diseases of the lungs, alimentary canal, nervous system, or joints.

I have completed a review up to 1916 of more than 500 post-mortem examinations made upon 162 Filipinos, 250 American negroes and 100 American whites.

The post-mortem examinations are largely of unclaimed dead in the cities of Manila and New Orleans and might be called the submerged tenth of the population. The negroes do not represent so low an element as the others, because life with them has a low value and more of the average negro population is included. The individuals here recorded present a fair picture of the types as represented by their disease resistance under the conditions of a struggle for existence with handicaps and without advantages. A different picture might be revealed in a study of a different

stratum of the population under different conditions of life.

First I will present, I—The type and the cause of death, then II—The type and the age at the time of death.

I. The Type and the Cause of Death.

For purposes of convenience the diseases will be grouped under the following heads: Tuberculosis, Cancer, Central Nervous System, Chronic enteritis, Pellagra, Chronic infection, Arterio-sclerosis, Chronic heart, Chronic kidney, Pneumonia, Acute infection, and Accident. All conditons that do not come under any of these headings are omitted; there are very few of these however.

There is no great racial difference in susceptibility to disease, but there is a great type difference that is true regardless of sex or race, climate or habit. This may be presented in percentages combining the races and sexes.

TABLE 2. TYPE AND DISEASE.

	No.	Tb.	Cancer.	C. N. S.	Chron. enteritis.	Pellagra.	Chron. Infection.	Art. Scl.	Chron. Heart.	Chron. Kidney.	Pneumonia.	Act. infect	Accident.
Hyper-Ontomorph	190	50.5	5.8	3.2	7.9	5.8	5.3	6.3	3.2	4.7	2.6	3.7	1.0
Hyper-Meso	38	31.8	4.5	1.1	3.4	3.4	6.8	1.1	8.0	13.6	10.2	9.1	6.8
Meso-Hyper	41	19.5	....	....	....	2.4	7.2	2.4	24.4	29.3	7.3	2.4	4.9
Meso-Ontomorph	141	12.8	0.7	....	0.7	....	5.0	5.7	28.4	29.8	7.1	4.3	5.7

The Hyper-Ontomorph.

The great scourge of the Hyper-ontomorph is tuberculosis, which occurs more than all diseases in this type among the submerged tenth. If we take the diseases that occur in more than 5 per cent of the diseased Hyper-ontomorphs and those that occur in less than 5 per cent, there is a well marked division into epithelial and mesodermal diseases. In the plus 5 per cent group tuberculosis heads the list, of course, then in order come chronic enteritis, arterio-sclerosis, cancer, pellagra, and chronic infections. In the minus of 5 per cent group come accidents, pneumonia, chronic heart disease, diseases of the central nervous system, acute infections and chronic kidney diseases.

The reason for the greater percentage of arterio-sclerosis among the Hyper-ontomorphs is due to the greater age at death in this type as will be explained presently.

The small number of accidents among the Hyper-ontomorphs may be explained by less exposure to violence and greater care on their part because of slight physical development.

The Meso-Ontomorph.

Chronic heart and kidney diseases are the scourge of the Meso-ontomorph among the submerged tenth, because they afflict more of this type than all other diseases combined. Tuberculosis is not a negligible factor although of less importance than for the Hyper-ontomorph. Pneumonia is next to tuberculosis in fatality for the Meso-ontomorph.

In conclusion it may be said that no great racial or sexual difference in susceptibility to disease is derived from a study of more than 500 post-mortem examinations.

Susceptibility on the part of the Hyper-ontomorph to diseases of the epithelial tissues, notably tuberculosis, skin, alimentary, and nervous diseases, and cancer, is indicated, and susceptibility on the part of the Meso-ontomorph to all diseases of the mesodermal tissues as suggested by heart and kidney disease, arteriosclerosis, pneumonia, weak heart and kidney, acute infections and accident is also indicated.

II. The Type and the Age at the Time of Death.

The effect of age upon type has been a question that has continually recurred, and the following data bear upon that question.

Table 3. Age at Death by Type.

	No.	20-40	40-60	60-80	over 80
Hyper-Ontomorph	163	48.5	28.2	20.3	3.0
Hyper-Meso	114	41.2	36.8	20.2	1.8
Meso-Hyper	39	33.3	53.8	12.9	..
Meso-Ontomorph	113	31.9	50.5	16.8	0.8

The death rate of the Hyper-ontomorph decreases with a fairly regular rate from the earliest to the latest periods, is greatest between 20 and 40, least after 80, whereas the death rate of the Meso-ontomorph increases from the first to the second period, is by far the greatest between 40 and 60 and is materially reduced after 60. More Hyper-ontomorphs than Meso-ontomorphs live beyond the age of 60, but more Hyper-ontomorphs than Meso-ontomorphs die before the age of 40.

Not only is there a selective death rate as to type, but also as to disease.

Table 4. Disease and Age at Death.

	20-40	40-60	60-80	over 80
Tb.	50.8	34.7	13.4	1.6
Chronic Heart and Kidney..	32.1	39.6	20.8	7.5

Tuberculosis appears at death more frequently between 20 and 40 that at any other time, whereas chronic heart and kidney disease appear more frequently between 40 and 60. This is to be expected because of the susceptibility of the Hyper-ontomorph to tuberculosis and the large per cent of deaths of this type beween 20 and 40, and because of the susceptibility of the Meso-ontomorphs to chronic heart and kidney disease, and the large per cent of deaths of this type between 40 and 60.

Should the results obtained by this study be verified and also found to be true for other classes of the population than the submerged tenth, they should prove of great value.

Summary.

(1) Human types that represent different degrees of susceptibility to disease may be segregated.

(2) The two extreme types among white people are the Hyper-ontomorph or carnivorous and Meso-ontomorph or herbivorous.

(3) The Hyper-ontomorph is susceptible to diseases of the epithelial tissues and more or less immune to diseases of the mesodermal tissues other than epithelial.

(4) The Meso-ontomorph is susceptible to diseases of the mesodermal tissues and more or less immune to diseases of the epithelial tissues.

(5) The Hyper-ontomorph has a high early death rate, 20 to 40 years, yet many live beyond the age of 60.

(6) The Meso-ontomorph has a high death rate at middle age, 40 to 60, and not so many live beyond the age of 60.

(7) The high early death rate of the Hyper-ontomorph is due largely to tuberculosis.

(8) The high later death rate of the Meso-ontomorph is due largely to heart and kidney disease.

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PULMONARY SYPHILIS—REPORT OF A CASE.

By J. MAXIME PERRET, M. D.,
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With the advent of the Wassermann test and the use of the Rœntgen rays as an aid in the diagnosis of intra-thoracic diseases, it seems as if Osler's statement that pulmonary syphilis is very rare, will soon be found not to be so. A professor of medicine while delivering a lecture on tuberculosis remarked that an important point in the diagnosis of the disease was always to keep it in mind. And so it is with syphilis of the lungs. Around the Charity Hospital this manifestation of the protean disease is not lost sight of, so that a sufficient number of cases has been recognized, and the condition is regarded with interest but not considered a rarity.

The diagnosis is to be made only after a careful consideration of all the facts in the case and a good deal will depend on elimination, for the signs and symptoms are those of a chronic bronchitis and broncho-pneumonia and hence could be simulated by tuberculosis, influenza, blastomycosis, etc. Careful and frequent sputum analyses are necessary. A good X-ray plate is a help. Finally a positive Wassermann test and rapid improvement under anti-syphilitic treatment make the diagnosis positive.

History of the Case.

R. McK., white male, 39 years, a native of Texas, a farmer, was admitted to a surgical ward on Oct. 13, 1915, complaining of swelling of his neck, hoarseness and "rheumatism."

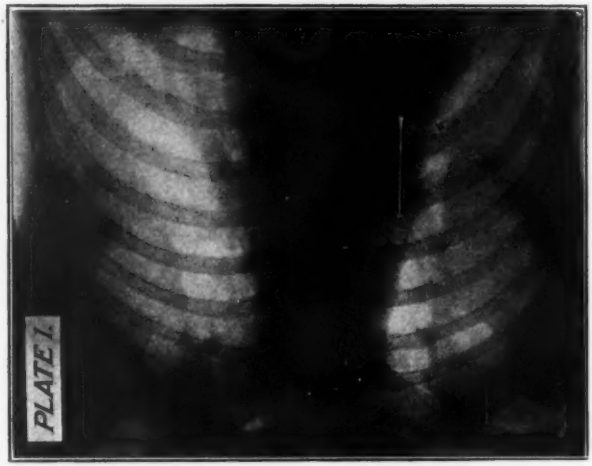
Family History did not contain anything of interest. It was negative for tuberculosis and cancer.

Past History: Measles and varicella in infancy. Frequently had had malarial fever. In 1913, was operated upon for a left varicocele and left inguinal hernia and left testis which was said to be tuberculous was removed. Six weeks later, right testis was removed for a similar reason. One month later, patient returned to work and remained well for about a year.

Habits: Up to eight years ago, was a heavy drinker; drinks moderately at present. Does not smoke.

Venereal History: Urethritis in 1897, and 1907; first attack was complicated by a poly-arthritis; no

permanent disability. In 1898 for a period of eight months, had several small ulcerations on penis, which would heal, only to ulcerate again after a few days. Sore throat one month after the appearance of the sores. Took mercury for eight months.



Present Illness: Onset gradual in March, 1915, with malaise, afternoon temperature which varied between 101 and 102° F., a dry cough which became productive in May, 1915. Would have occasional paroxysms of coughing, after which he noticed that the sputum would be streaked with blood.

Began to get hoarse in July, but this hardly caused him any inconvenienc until September when he could speak only in a whisper and noticed that larynx and surrounding tissues were swollen; this progressed for a week, diminished for several days and afterwards began again to swell. In September a physician told him that he had consumption.

Towards end of July, 1915, his left elbow became swollen and painful. In the last two weeks the pains in his arm are more severe at night. On admission the elbow is very painful and he holds his left forearm almost straight. In September, 1915, had pain and swelling of left hip joint which persisted for two weeks. Habitually constipated. Sleeps poorly. Bad appetite. Weight 155 pounds in March; 114 pounds in October.

Physical Examination:

Emaciated, poorly developed, adult white male. Skin: Many small white scars, having a general distribution. Scars of previous operations in inguinal regions. Lymphatic glands not palpable. Knee jerks were lively. Eyes: Pupils equal, reacted to light and accommodation. Ears and nose negative. Mouth: Slight pyorrhœa alveolaris. Small white ulcerations on posterior pharyngeal wall. Neck: Swelling of larnyx and peri-laryngeal tissues which form a mass about the size of a small apple. Overlying skin is freely movable. Patient is very hoarse. Extremities: Left elbow joint is spindle-shaped, very painful and forearm is held at an angle of 145 degrees with arm; no power of flexion; slight pronation and supination; the joint is slightly swollen; thickening of outer surface of lower third of the arm. Chest: Bony landmarks prominent. Heart: Regular, slightly rapid, sounds clear; no enlargement. Lungs: Hyperresonant note on percussion. Breathing diminished over entire chest and is of the cog-wheel type, especially in interscapular spaces. Crepitant rales. Abdomen: Scaphoid in shape. No tenderness nor rigidity. Liver, spleen and kidneys not palpable. Genitals: Penis: No visible scars. No urethral discharge. Testes absent.

Laboratory Findings:

Urine negative for albumen, sugar and casts.

Blood: Hemoglobin 60%. Total red blood cells per cubic m m 3,306,250. Total white blood cells per cubic m m 5,208.

Differential Leucocytic Count:

Lymphocytes 28%
Neutrophiles 72%

Color Index 0.8. Negative for malarial plasmodia.

Wassermann and Tschernogubow were both strongly positive. Sputum was profuse, foul, muco-purulent. It was examined on twelve different occasions, twice the anti-formin method was used, and it was always negative for aid fast bacilli.

X-ray report 10—16—15.

(a) Chest: Characteristic T. B. infiltration of both lungs (upper lobes more so).

(b) Left elbow: Moderate degree of bone atrophy. Joint

presents evidence of an arthritis, but no active process of necrosis present.

X-ray report 10—30—15.

Chest: Lungs—

Comparing findings of present examination with those of 10-16-15 there does seem to be some improvement, however, variations in density of plates (exposure) must be considered. 10-14-15. A laryngologist called in consultation, reported as follows:

Edema of arytenoids with slight fixation; tubercular laryngitis.

The following day another specialist, perhaps influenced by the Wassermann report which had now come back, pronounced the case syphilitic.

Temperature: From October 13 to 23, varied between 101 and 102° F. in afternoon; from October 24 to November 6, only twice did it reach 99° F. Respirations 20 to 24 per minute. Pulse was usually in the eighties.

Treatment: Had four intra-muscular injections of bichloride of mercury, gr. 1-4. one dose being given every other day. After this short course of mercury, he became salivated, the bad condition of his mouth, probably being responsible. Also was given the saturated solution of potass. iodid., beginning with gtt. 10 and increasing each dose by gtt. 1.

Progress Notes.

10-22-15—Feels better. Does not have to strain so much to speak and is less hoarse. Can now use left forearm. Diminution of pains in left elbow.

10-27-15—Slightly salivated.

10-30-15—Hoarseness and elbow pain almost entirely gone. Is now a helper in ward.

11-2-15—Improvement continues.

11-6-15—Elbow is now painless. Normal motion regained. Nutrition of muscles of right arm has improved. Examination of chest: dullness in interscapular spaces, especially right. Distant breathing throughout chest. Crepitant rales at both bases posteriorly. Few sonorous rales at both bases posteriorly. Few sonorous rales at right apex. Voice clear. Feels very well and has gained in weight.

Discharged and advised to continue anti-syphilitic treatment.

5-7-16—A letter received from patient says that he is working and feeling well. Has not had any fever or cough since leaving hospital.

Review and Discussion of Case:

1. It will be recalled that in 1913, he had a double orchidectomy performed, on a diagnosis of tuberculosis I do not know whether the therapeutic test was tried and whether the testes were submitted to a histo-pathological examination. In the light of the subsequent developments of the case, I feel tempted to believe that the genital disease was leutic. Be that as it may, the important point to bear in mind is not to remove a testicle before eliminating syphilis by the Wassermann and therapeutic tests.

2. That a clinical diagnosis of pulmonary tuberculosis should have been made seems at first sight very plausible, as the patient had rales in chest, cough and expectoration, afternoon temperature, emaciation, etc. However, the history of sores in 1898, followed a month later by sore throat and repeated negative sputa

analyses, ought to have been sufficient to arouse suspicion and put the clinician on the right track provided that he had borne the possibility of syphilis in mind.

3. One of the laryngologists' opinion and also the radiologist's interpretation of the skiagraph, though both were erroneous, are of interest in showing how closely tuberculosis and syphilis may at times resemble each other.

4. When a careful history of the case had been obtained, and a physical examination made, two diseases at once loomed up, tuberculosis and syphilis, as the laryngeal, pulmonry and arthritic symptoms could all be accounted for by either one. The X-ray of the joint and bones eliminated tuberculosis, but was not characteristic of syphilis. And had we accepted the laryngologist's and radiologist's opinions without question, we would have been led astray. The strongly positive Wassermann reaction, the repeated negative sputa analysis and the rapid amelioration under mercury and potas. iod., however, made us feel sure that we were dealing with a case of pulmonary syphilis. The second radiograph showing that the infiltrations and deposits in the lungs were diminishing and news of the patient six months later stating that the pulmonary symptoms had cleared up, do not allow of any reasonable doubt as to the accuracy of the diagnosis.

About a month after seeing R. McK., a woman was admitted to the obsterical service, who had been hoarse and coughing for about five months and had lost a good deal in weight. On physical examination, I found many rales in her chest. The Wassermann reaction was strongly positive. The sputum was negative for tubercle bacilli. This looked like another case of syphilis of the lungs, but as the patient deserted before skiagraphs of the lungs could be taken and repeated sputa analyses made and the therapeutic test tried, I was unable to make a positive diagnosis. I only mention the case to show that the condition as I have already stated is not rare. If we are on the alert, we are going to recognize quite a number of cases.

In conclusion, I wish to express my thanks to Dr. Urban Maes, who has kindly allowed me to report the case, which was in his ward when in the hospital.

A DISCUSSION OF SOME QUESTIONABLE FORMS OF PRESCRIBING.*

By OSCAR W. BETHEA, M. D., New Orleans.

The prescription is a tripartite document of particular interest to the prescriber, the compounder, and the patient, and its value depends upon the co-operation of these three.

To obtain desired results the doctor must so construct his order as to avoid the possibility of misunderstanding. The druggist must execute the order with accuracy and deliver promptly. The patient must use the remedy and carry out the associated instructions.

As the main object in prescription writing is to secure the application of therapeutic agents to the treatment or prevention of disease, every effort should be made to safeguard every step of the process from writing to application inclusive. All other considerations should be subservient and nothing tolerated that introduces the element of danger. The object of this paper is to point out a few customs that tend to promote the chance of error.

The average pharmacist is so accustomed to the common usages of prescription writing that their translation and execution is mechanical, but many prescribers pick up a word or phrase that is sufficiently unfamiliar to present the possibility of confusion. I selected a few of such from prescriptions and arranged a little examination with which I made a canvass of many of the drug stores of this city, and examined twenty pharmacists who with their usual spirit of co-operation submitted themselves.

I wish to say here that in my earlier years I worked as a pharmacist in four States and in many cities and that the pharmacists of New Orleans are far above the average. The State board requirements are high and have been for years—so high in fact that Louisiana is among the large group of progressive States with uniform standards that reciprocate in the matter of license.

All the druggists examined were licensed—all but eight were graduates in pharmacy. Their colleges ranged from among the largest in Europe and North America down. Their average experience was sixteen years.

Among the subjects of examination were the following:

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Latin Words and Abbreviations not in Every Day Use.

These with the average grades were:

"No. rep." (not to be repeated). Used in the lower left hand corner of the sheet when the prescription is not to be refilled. The average grade was 90%. That is eighteen understood the meaning, two did not.

"Q. R." Meaning that the quantity is correct and used when the dose is unusual, but proper for that case. The average was 0. None recognized the meaning as it is so seldom used here, though often employed elsewhere.

"Opt." (best). Used as in ordering olive oil and brandy when different grades might be in stock and the best is desired. Average grade 20%. Four were familiar with this abbreviation.

"QQ" or *"Q"* or *"q"* meaning every and *"vel"* or *"v"* meaning "or." Some doctors use this, as in "Teaspoonful q 2 v 3 hours." Average grade 15%. Only three could interpret this.

"p. c." (after food) used, as in "Teaspoonful pc. c., meaning after meals. Average grade 85%. One answered "before meals;" two did not know.

"t. i. d." (three times a day) as "One t. i. d." Average grade 100%. This is sufficiently common to be generally recognized.

"tere bene simul" (Rub well together). Used as in prescribing an ointment containing yelow mercuric oxide for the eyes. Average grade 50%. Half either knew or had a general idea of the meaning.

Druggists have books in which these or similar words or abbreviations could be found, but a word that would require looking up is unjustifiable. I believe it was Dr. Osler who said something about a patient dying through a misprint.

Unusual Arrangement

Occasionally a prescriber is found who arranges his prescriptions as follows:

Rx.

Hydrarg. chlor. mitis.	gr. j
Sacchari lactis	gr. x
M. ft. cht. mitte tales, no. *iij*	
Sig.. One every hour.	

The body of the prescription specifies the amount for one dose

and the druggist is instructed to prepare a certain number of such doses. This prescription was submitted in the examination and fifteen druggists understood it as intended, and five understood that the amounts were totals and that the one grain was to be divided into three powders of one-third grain each.

My personal experience was that this type of prescription did not occur but once or twice in a thousand, if that often, so it is unexpected when presented. It requires more pencil strokes from the doctor than the usual style, and aside from the chance of misunderstanding it throws upon a drug clerk of unknown mathematical ability the burden of making a calculation that the educated experienced physician could and should do himself.

Metric System.

In filling prescriptions certain weights and measures are necessary. I personally examined the weights and measures in ten stores to ascertain if sufficient of the metric system were carried to enable the druggist to handle these prescriptions without having to transpose them to the apothecaries system before filling. One store had none and only two had complete sets, while less than half had what I considered sufficient to enable them to handle the general run of work if in the metric system. This means that if a prescriber writes metric prescriptions a fairly large per cent of them must first be transposed by the druggist to the denominations of the usual weights and measures. This must be done by a clerk of unknown ability, often in the middle of the night after a trying day's work, or during the day while he is also selling stamps, directing strangers, showing the directory and serving as general utility man for the doctors particularly and the neighborhood generally.

To transpose a prescription from one system to another a knowledge of four cardinal equivalents are necessary and must be so familiar that their use is mechanical. I submitted them to the pharmacists with the following grades:

How many grains in a gram?—90%. Eighteen knew approximately, two did not.

How many minims in a cubic centimeter?—70%. Fourteen knew, six did not.

The metric equivalent of a fluid ounce?—80%.

The metric equivalent of a grain?—40%.

The metric equivalent of a fluid ounce?—80%.
The metric equivalent of a grain?—40%

The druggists answered these questions off hand and all could have looked up the correct answers in data readily available, but is it necessary or justifiable to subject a patient to the possibility of error to please the personal fancy of a prescriber?

My hearty approval of the use of the metric system, when we are ready for it, is well known, but my contention is that here and now we are not ready. There is no possible blame to be attached to the pharmacists. They are always abreast of the requirements made upon them and their unpreparedness on the metric system is due to its great infrequency in use in this city except in those stores located in the hotel section that catch the transient trade. The pharmacists are no more to be expected to be able to do the unusual than some of us to remove a cataract, or operate on an aneurism of the abdominal aorta. I am taking the liberty of distributing some copies of a previous paper setting forth in greater detail my views on the metric system.

I still hope to see more intimate co-operation between the compounders, when uniform usages will be adopted to the great joy of the pharmacists, and to the credit and benefit of the medical profession.

VACCIN TREATMENT OF WHOOPING COUGH.*

(PRELIMINARY REPORT.)

By CHARLES JAMES BLOOM, B. Sc., M. D.

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During the past few years,—since Bordet and Gengou in 1906 gave to the medical world a new bacteriological factor as the causative agent of pertussis—many articles referable to the vaccin treatment have been published—some authorities giving much credit to the efficiency of the vaccin therapy, others discrediting the favorable conclusions of the former. It did not seem, however, that the subject had been worked out thoroughly by those obtaining negative results.

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It was not my intention to discuss this subject until I had carefully watched fifty cases, but inasmuch as the results noted up to this time were so universally successful, and prompted by a desire to help those now afflicted with this virulent infection—these facts caused me to discuss my modest findings. Up to this writing,—the writer has watched some thirty cases, but as the data necessary for conclusive deductions were lacking in some of the cases, only fifteen of this number will be discussed. *Nevertheless the entire series gave positive results.*

In the near future—a review of the literature on this subject as well as additional cases and data will be brought before the society.

REACTION

Of the fifteen cases under consideration, in only one was there a rise in temperature—namely one half of one degree. Other than convulsive attacks following the administration of the vaccin, there were no indications of a reaction.

VACCIN

The vaccin employed in these cases was the one containig, viz:

	Bacteria per bulb.
Bordet-Gengou bacilli	50,000,000
Staphylococci pyogenes aureus	10,000,000
Micrococci catarrhalis	20,000,000
Bacilli influenzæ	20,000,000
Streptococci pyogenes	20,000,000

When the treatment by this method was first instituted small initial dosages were recommended—increasing 20,000,000 each time; for instance initial dose 60,000,000, second dose 80,000,000 and so on until a maximum of 200,000,000 was reached. Practical experience taught pediatricians these larger amounts both at the initial and the following doses.

The quantities used in this series and the number of injections are as follows:

Case.	Amount vaccin equals					
No. 1.....	500,000,000	Number	of	injections	equals	5
No. 2.....	660,000,000	"	"	"	"	7
No. 3.....	624,000,000	"	"	"	"	7
No. 4.....1,268,000,000		"	"	"	"	12
No. 5.....	596,000,000	"	"	"	"	7
No. 6.....	540,000,000	"	"	"	"	6
No. 7.....	500,000,000	"	"	"	"	5
No. 8.....	900,000,000	"	"	"	"	6
No. 9.....	974,000,000	"	"	"	"	11
No. 10.....	766,000,000	"	"	"	"	9
No. 11.....	761,000,000	"	"	"	"	10
No. 12.....	602,000,000	"	"	"	"	7
No. 13.....	750,000,000	"	"	"	"	9
No. 14.....	870,000,000	"	"	"	"	11
No. 15.....1,050,000,000		"	"	"	"	12
Average.....	760,000,000	"	"	"	"	8

The initial dose was found to be insufficient—my best results were obtained in cases where the first dose was not smaller than one hundred million. Another error which has been remedied by the writer is in relation to the succeeding doses namely, first dose, 120,000,000; second dose, 180,000,000; third dose, 240,000,000, and maintaining this maximum quantity until the end of the treatment. Heretofore I have not gone beyond this quantity, but in the future, however, the maximum quantity will be much larger. The intervals are as follows:

(a) Every other day until one of the marked symptoms had disappeared or the severity and intensity of several symptoms had become less marked.

(b) Following this period (generally two weeks), intervals of three or four days, and continued until patient is discharged.

Duration.

Case.	Treatment Before		After	Total
No. 1	5 days	plus	18 days	23 days
No. 2	6 days	plus	28 days	34 days
No. 3	5 days	plus	28 days	32 days
No. 4	7 days	plus	24 days	31 days
No. 5	42 days	plus	22 days	64 days
No. 6	1 day	plus	26 days	27 days
No. 7	7 days	plus	13 days	20 days
No. 8	14 days	plus	11 days	25 days
No. 9	1 day	plus	28 days	29 days
No. 10	35 days	plus	23 days	58 days
No. 11	14 days	plus	32 days	46 days
No. 12	7 days	plus	18 days	25 days
No. 13	8 days	plus	13 days	21 days
No. 14	2 days	plus	41 days	43 days
No. 15	1 day	plus	31 days	32 days
Average	10 days	plus	23 days	33 days

Omitting cases Nos. 5, 10, 14—first two having had the infection at least five weeks previous to treatment and the latter case complicated, the average duration was:

Treatment.		
Before	After	Total
6 days plus	22 days	28 days

The duration of the disease after the condition has progressed for many weeks, is not decreased by the treatment, but averages with the remaining cases.

Authorities such as Holt, Lotch, Cantley, Garrod, Batten, Thursfield, and Ruhrah estimate the duration of this disease, respectively, 61 days, 90 days, 120 days, 30-90 days, 49-148 days, and 90-180 days.

Can one doubt the efficiency of this vaccin, when the length of the infection is reduced from an average 30-180 days to 28 days.

AGE AND SEX

The cases were as follows:

Under 1 year—Case No. 3.
Under 2 years—Case No. 1.
Between 2-5 years—Case No. 6.
Between 5-8 years—Case No. 5.

Eight boys and seven girls constituted the sex distribution.

Symptoms.

(a) Weight, (b) Cough, (c) Vomiting, (d) Loss of sleep and (e) Complications.

(a) Weight.

Case.	Treatment At Start.		At Finish.		Gain.	Loss.
No. 1	44 lbs.	8⅗	45 lbs.		8⅗	
No. 2	47 lbs.	8⅗	49 lbs.			24⅗
No. 3	30 lbs.	2⅗	30 lbs.	6⅗	4⅗	
No. 4	58 lbs.		56 lbs.	12⅗		24⅗
No. 5						
No. 6						
No. 7	21 lbs.	1⅗	20 lbs.	5⅗		12⅗
No. 8	37 lbs.	12⅗	36 lbs.	4⅗		20⅗
No. 9	14 lbs.		11 lbs.	8⅗		40⅗
No. 10	29 lbs.	10⅗	30 lbs.	3⅗	9⅗	
No. 11	25 lbs.	8⅗	25 lbs.	15⅗	7⅗	
No. 12	28 lbs.	6⅗	27 lbs.	7⅗		15⅗
No. 13	16 lbs.	6⅗	16 lbs.	13⅗	7⅗	
No. 14	21 lbs.	9⅗	20 lbs.	11⅗		14⅗
No. 15	27 lbs.	5⅗	27 lbs.	8⅗	3⅗	

Cases Nos. 6—Gain average 6 1-3⅗.
Cases Nos. 7—Loss average 21 5-7⅗.
Cases Nos. 2—Not weighed.
Average loss in Cases No. 13 averaged 14⅗.

Cough and Vomiting:

(a) Intensity and number of attacks became markedly less after *three injections of vaccin had been given.*

(b) *After six injections* spasmodic character and persistent vomiting ceased.

(c) Sleep during the twenty-four hours is not disturbed after 5-12 days.

Case No. 8 is illustrative of the remarkable virtue of this mixed vaccin.

Complications. Thirteen out of fifteen cases, after ten months' observation have not exhibited a single sequel or complication.

24 hrs.	Coughs. Day	Night	Total 24 hrs.	Vomiting.	Blue Spells.
1st	6	6	12	4	2
2nd	7	5	12	3	2
3rd	5	5	10	1	1
4th	6	7	13	5	2
5th	4	3	7	1	
6th	4	2	6	2	
7th	3	2	5		
8th	3	2	5		
9th	3	2	5		
10th	3	2	5		
11th	2	2	4		
12th	Discharged.				

Blood Manifestations.

Case	Age.	Date.	Total white Cell Count.	Endothelial leucocytes.	Eosinophiles	Lynophocytes	Neutrophiles	No. of vaccin injections.
				Pct.	Pct.	Pct.	Pct.	
No. 9	2½ mos.	6/29/15	60,500	9	66	...	25	...
		7/8/15	8,150	5	56	...	39	4
		7/14/15	3,700	16	13	1	70	x2
		7/29/15	16,250	4	34	4	58	x4
No. 10	3 yrs.	7/10/15	18,800	3	57	3	37	2
		7/12/15	6,500	12	6	2	80	x3
		7/22/15	27,000	8	25	12	55	x3
		7/29/15	22,500	2	45	13	30	x2
No. 11	3 yrs.	7/8/15	13,500	6	53	4	37	...
		7/13/15	3,400	13	35	2	50	x2
		7/20/15	43,000	8	44	9	39	x3
No. 12	3 yrs.	6/24/15	13,540	9	45	7	39	...
		7/6/15	43,600	7	36	10	47	x3
		7/13/15	4,500	4	30	1	65	x3
No. 15	4 yrs.	8/3/15	25,500	8	41	6	45	2

CONCLUSIONS.

Before vaccin. (a) Marked leucocytosis at onset of Pertussis (13,540—60,500). (b) Significant lymphocytosis at onset of Pertussis (41 per cent—66 per cent.) (c) Moderate eosinophilia (0—12 per cent).

After vaccin. (a) Marked leucopenia (3,400—8,100), with decrease in number of lymphocytes and increase in the neutrophiles. (b) In third stage of Pertussis, moderate leucocytosis with normal differential count.

Conclusions and Summary.

1. The treatment of pertussis by vaccin therapy is most efficient providing the procedure in following same is correct.

2. Give large initial dose, not less than 120,000,00—increase 60,000,000 for each succeeding dose, and give ***maximum quantity*** *every other day until one of the marked symptoms show an appreciable improvement, continue every 3-4 days until cured.*

3 *Vaccin is preferable because*

(a) No reaction.

(b) Duration averages only 28 days.

(c) The loss of weight is minimum—14 ounces.

(d) The intensity and number of coughing spells become less after three injections have been given.

(e) Vomiting ceases after six injections.

(f) Sleep is not disturbed after 5-12 days.

(g) No complications in 13 cases after 8-12 months' duration

THE ENUCLEATION OF THE EYE BALL AND FAULTY TECHNIC COSMETICALLY CONSIDERED.*

By T. J. DIMITRY, M. D.,

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This subject may be instructive and interesting to the general practitioner and he will gather information which will make it possible for him to answer the repeated queries as to why the artificial eye appears so unnatural?

The observing practitioner, the oculist and the confiding patient have noted with dissatisfaction the results obtained, cosmetically considered, after the enucleation of the eye. My desire to encourage the use of what appears to me to be an improved technic over the enucleation operation as is usually performd is my apology for contributing this paper.

The enucleation of the eye is a major operation, and this exsection destroys all hope of visual power leaving the patient with a noticeable and objectionable deformity which often is mortifying to the patient and distressing to his friends. This deformity even

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when not marked is the source of much solicitude on the part of the inquisitive individual. The patient is oftimes depressed and disappointed at his appearance. He most often believes that the fault is due to an improperly fitted shell or prothesis. Little notice or interest on the part of his surgeon to see that the best fit is obtained after enucleation is extremely common. The fitting of the prothesis or artificial eye is usually left to the inexperienced optician. He selects and inserts into the orbit the shell; and the only qualification which he possesses in adapting an eye to the socket is his possession of a stock in trade of these artificial eyes. The relation and positon of the tissues are not considered by this tradesman, and, adding insult to injury, the patient cosmetically considered is poorly handled.

The different enucleation operations are practically the same, Bonnett, Farrell, Agnew and the Vienna, each and everyone severing the conjunctiva, the muscles and the optic nerve from the tube.

> "The hemorrhage is checked and, in the Agnew method, the opening in the conjunctiva is neatly drawn shut—not sutured—and any extruding shreds from the tissues are cut off."

The above methods are the most generally used and in fact in most textbooks little importance as to the care of the socket is given. In Beard's recent textbook of Ophthalmic Surgery, page 463, appears this description under the Agnew technic:

> "The opening in the conjunctiva is nearly drawn shut—not sutured—and any extruding shreds from the tissues beyond are cut off."

The muscles, tendons and fat all fall into a position which nature permits, sometimes being heaped to the inner, outer, upper or lower part of the orbit and might find a proper positon for the muscles, but unfortunately this is seldom the case, hence the insult to the ambitious patient and his desire for personal appearance.

The above technics, Agnew, Bonnett, Farrell and the Vienna technic are to be severely critcized unless you provide for the proper bringing together of cut muscles, Tenon's capsule and conjunctiva. It is granted that no operation is so reliable in its results as Tenon's enucleation, but the necessity of improving the orbit cosmetically is essential for a true surgical technic—Bowman, Allport, de Wecker, Snell, Ernest Clarke, Suker, H. Schmidt,

Priestly Smith, de Schweinitz, Todds, Hansel and Sweet have provided means for the care of these cut muscles, and each operator aims to procure the best and most movable stump without exposing their patient to any harm by so doing. We desire to have an artificial shell rest upon the best movable stump procurable, provided it is consistent with safety.

The Bonnett-Vienna methods are adopted by many ophthalmic surgeons. It is easy of performance, but the patient is left with an empty cup, which affords no support to the lids and the inserted shell. The upper lid falls into the cavity, the lower lid sags and when the prothesis is inserted, one side may bulge forward, for the cul-de-sac is improperly placed, the immovable eye stares into space, all of which is mortifying and discreditable to the surgeon.

The writer is not entering into a discussion as to when the eye should be enucleated, particularly when we have to deal with a superative panophthalmitis. Eviscerate or enucleate is the unsettled question.

The different substitutes are the results of a desire for a superior stump, and thereby obtain an improved appearance.

1st. Simple evisceration (the removal of all scleral contents) leaving muscles, optic nerve, cheek ligaments attached to the sclera. The sclera and conjunctiva are sewed up; but there is a vacant space left within the sclera, which most time fills with blood and drainage is not provided for.

2nd. Evisceration with the transplantation of a globe of gold, glass, wire, fat—paraffin, rabbit's eye and many other substances within the sclera. The results obtained are ideal as to a movable stump when the artificial vitreous is retained. Simple evisceration and evisceration with the insertion of an artificial vitreous have occasoned in many reported cases transferred ophthalmia. These facts occasion hesitancy in adopting such a technic. Though the prospect is very pleasing the danger is not to be ignored. Transferred or sympathetic ophthalmia following evisceration has been reported by Drausart, Van Dunyse, Forget, Nieden, de Wecker, and was quite generally condemned at the Heidelberg Ophthalmic Congress, 1908. H. Knapp observed a severe case of orbital cellulitis—Shieck, Hotz, Schmitz, Rimpler, de Schweinitz, Waldispuhl and others have reported instances of ophthalmia following evisceration—Gifford, Handerson and many others regard

evisceration as a safer operation. Gifford, in the *Ophthalmic Record*, 1908, reports nine cases of transferred ophthalmia following Mules' and three after Frost operation.

The following technic of Hall, in *American Journal of Surgery*, 1896, and Husinger in *Journal American Med. Association*, 1908, advocated an operation designated as Eviscero-Neurotomy. Husinger says it is a combination of evisceration and optico-neurotomy. In this operation the muscles are undisturbed. The anterior and posterior sections of the globe are removed; these are the two principal sections from which trouble may be expected.

In this operation the conjunctiva is separated from the globe at the sclero-corneal junction. The anterior portion of sclera is removed practically at the insertion of the muscles. The contents of the globe are thoroughly removed and hemorrhage stopped. The posterior end of the ball is picked up from within, and an incision made with a bistuary and with scissors the optic nerve is cut and the post one-third of the globe. We have remaining a scleral ring with the six muscles properly attached, not having been disturbed as in the enucleation operation. Many different surgeons have carried out different technics to close the space after enucleation, but the best of them provide for nothing equal to position where they were originally placed by nature. Many bring the superior, inferior, internal and external recti together, but the superior and inferior oblique are at all times ignored. These latter two muscles are very important and a study of their anatomical situation in the orbit will readily show that they should not be ignored as is generally done. A consideration of the anatomy of the orbit, the situation of the ball within the orbit and the attachment of the muscles to the globe will assist in conveying the reason for suggesting this technic. The long orbit is a four-sided pyramid. The base is the anterior aperture of the orbit and the apex is the point of entrance of the optic nerve. The inner wall of the pyramid is paralled to the inner wall of the other orbit. The outer wall runs divergently. The four straight muscles take their origin from the apex of the cone along the margin of the foramen opticum, they run forward diverging in their course, and are inserted into the globe. The two oblique muscles are quite different both in origin and insertion. The superior

starts at the rim of the foramen opticum and passes forward along the upper and inner wall of the orbit and passing through the trochlea or pulley. The trochlea lies a little behind the upper and inner margin of the orbit. The muscle after passing through this fibrous loop bends backward at an angle of at least 60 degrees, where it spreads out into the form of a fan and is inserted into the upper part of the eye ball just behind the equator. The inferior arises from the floor of the inner side of the orbit, passes outward and is inserted into the globe behind the equator.

The tendons of all muscles pass through and are invaginated by Tenon's capsule. A detail description of the cheek ligaments would add interest and the importance of them should be remembered and should not be unnecessarily disturbed. The oblique muscles and the cheek ligaments assist in preventing the eye from sinking into the orbit and the less their relations are disturbed the greater and better cosmetic results to be obtained.

The Hall operation provides for a piece of gauze to be inserted into the sclera. Husinger uses a fenestrated metal ball. The suggestion I make is to close carefully the scleral ring posteriorilly, centrally and anteriorly and not necessarily transplant anything within, merely bringing the structures together without disturbing them. You may transplant fat, or even a rabit eye, into this space, but that it will be ultimately absorbed is most generally believed. Cosmetically the results obtained are quite satisfactory and its simplicity of technic encourages its use. It leaves an excellent stump and prevents the danger of sympathetic inflammation. The reaction is no greater than an enucleation. The muscles are held centrally and in a proper position and with a shell properly adjusted, the results are most gratifying.

In closing I would like to append a short statement appearing in the Enclyclopedia of Ophthalmia on (page 4,396), headed "A Choice of Method in Eye Ball Excision," which, in speaking of enucleation says:

> "that in the majority of cases this mutilating and deforming operation is unnecessary and should be relegated to obscurity, that it may make way for better, more modern and more humane surgical procedures."

INTERSTITIAL PREGNANCY.*

By W. KOHLMANN, M. D., New Orleans, La.

The abnormalities of the tubes require a special consideration, as they are liable to cause peculiar and important disorders of pregnancy. As you know, it is the function of the tubes to carry the spermatozoids to the ovary, and the ovum, after impregnation (which occurs in the ovary or in the ampullary part of the tube) into the uterus. The spermatozoids reach the ovary, if the tube is normal, by their own natural movements. The propelling power of the ovum is the movement of the cilia of the tube, which is directed toward the internal os, aided by the peristaltic movement of the tube.

Disorders of the tubes, preventing the entrance of the spermatozoids, are a cause of sterility. But if the function of the tube is only disturbed in regard to the motion of the fertilized ovum, this may adhere and develop at any location on the road from ovary to uterine cavity, most frequently in the mucous membrane of the tube, causing the development of an ectopic pregnancy.

The anomalies of the tube, which produce the disturbance of the normal mechanism and cause the development of an ectopic pregnancy, are not definitely known, and it is difficult in any case, even at operation for rupture of an extra-uterine pregnancy, to decide the cause in the special case.

The most frequent conditions interfering with the downward movement of the ovum are:

(a) Inflammatory state of the tube and peritoneal adhesions, compressing the lumen or interfering with its peristalsis.

(b) Small tumors, situated in the wall of the tube, may compress the lumen.

(c) Endosalpingitis, producing destruction of the cilia and consequent cessation of the downward current.

(d) Infantile tubes, persisting later in life—lack of cilia.

(e) Diverticula of tube.

(f) Occurrence of the external migration of the ovum. The impregnated ovum gets too large during its migration and the size prevents its passage through the tube.

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Tube pregnancies are at present so frequently met with, that it requires an excuse to report a case of that kind. The interstitial variety though is extremely rare and deserves, especially in regard to diagnosis, some special mention. Werth saw one case in 120. Lawson Tait reports one in 100, Rosenthal 40 in 1,324 cases.

Two cases have been under my personal observation. One I reported at the Louisiana State Medical Society in 1912. The history of this case was slightly different from the history of any extra-uterine pregnancy.

> Patient's last menstruation November 19, 1911. On February 13, 1912, was awakened by sudden pain in abdomen, right side. On first examination there were symptoms of moderate shock—pale color, pulse 120. Bimanual examination showed cervix and uterus enlarged and soft—four months' pregnancy. Uterus irregular in shape, right side reaching higher than the left. The examination showing the absence of an abdominal mass outside the uterus made the diagnosis of an extra-uterine doubtful, and operation was postponed. Later more marked symptoms of internal bleeding developed and an immediate operation was imperative.

Operation showed the seat of the ectopic growth to be in the right side of the uterine wall, simulating a tumor of the uterus.

The other case occurred only recently and presents some other interesting features, besides being a good specimen of this variety which mainly induced me to bring same before this meeting.

(1) There is hardly any doubt that the cause of the extra-uterine was due to external migration of the ovum.

(2) That the pregnancy developed in the interstitial part of the tube after salpingo-oöphorectomy of the affected side was done.

Regarding the symptoms and the possibility of diagnosis the case could harly be differentiated from any ectopic gestation.

> Mrs. B. Admitted Charity Hospital May 9, 1916; discharged Charity Hospital, May 31, 1916.
>
> **Previous history:** Three children, no miscarriages. Was operated sixteen months ago. Has not menstruated for three months. The last two months patient has been suffering some nausea, pain in back and pain in left lower abdomen, radiating towards the back.

The pain in the left side has been growing worse and patient was admitted to hospital. Examination—vaginal and abdominal: cervix normal in size and somewhat soft. An irregular and soft mass is felt in the abdomen which was considered to be the uterus with a slightly fluctuating mass adherent to it.

Operation (May 12, 1916). After opening the abdomen omentum was found adherent to a mass, which appeared deeply congested in spots, though pale and of a greyish color as if ready to rupture, and intimately connected with the uterus.

After dividing the omentum between two clamps it was easily seen that the irregular mass was the uterus itself. Right half of the mass was normal in consistency, the left was soft, fluctuating and irregular in shape. Panhysterectomy was done. Patient made good recovery. I did a total excision of the uterus, as the patient's conditon was satisfactory, and at the same time I did not consider it just to have her exposed to future complication.

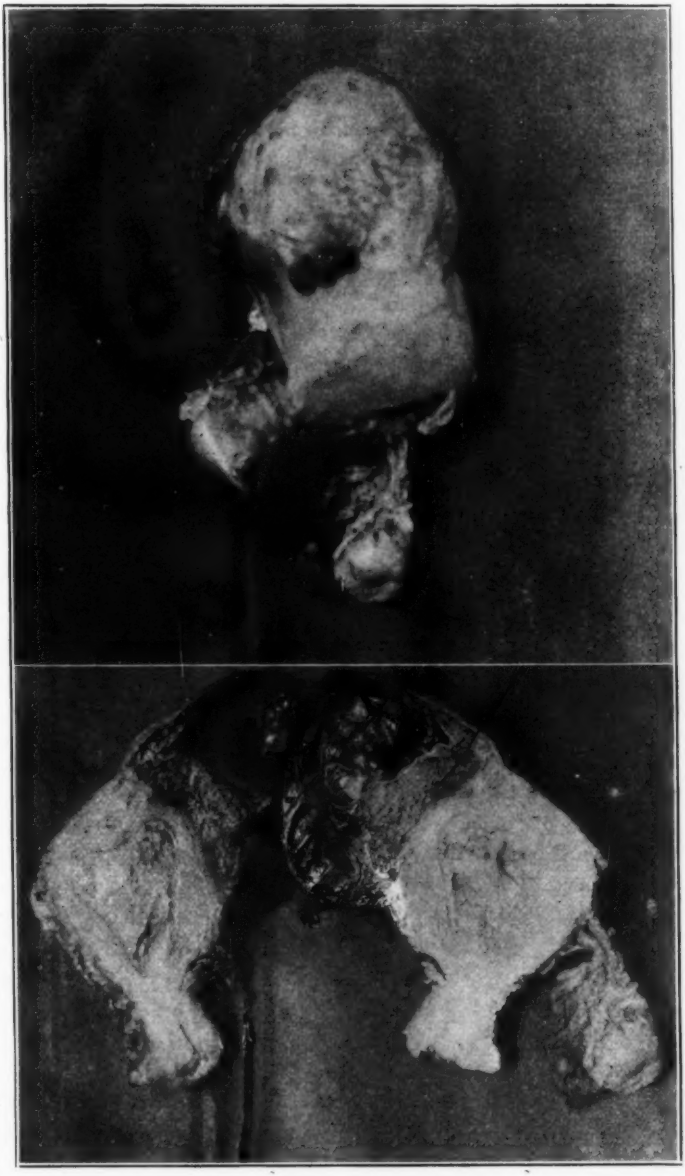
Specimen was hardened and longitudinal incision proved it to be an interstitial pregnancy. (See cuts.)

If it is already difficult in many cases to make a fairly probable diagnosis in tubal pregnancy, the diagnosis of the interstitial variety is hardly possible beyond the probability of an ectopic pregnancy.

It is possible in the two other tubal varieties to detect an enlargement of the tube, either in form of a thickening of the end of the tube in the ampullary variety, or in a cylindrical or ovoid shaped enlargement of the tube in the isthmic variety.

The graviditas interstitialis presents itself clinically as a swelling of the fundus uteri, which does not make the impression of a tubal tumor, but as a tumor of the uterus. This tumor, produced by the enlargement of the interstitial part of the tube, is situated on the inner side of insertion of the round ligament; the tumor of the other varieties is situated externally of the insertion of the round ligament. It may easily be mistaken for a soft myoma of the uterus, or for a variety of uterine pregnancy, the so-called annular pregnancy, as the uterus is asymmetrically enlarged.

As the interstitial part of the tube is surrounded by muscular tissue of the uterine wall, the wall takes part in the formation of the fetal sac, enveloping the ovum from all sides. The fact that the ovum in this particular variety is surrounded by muscular tissue is no doubt the reason that the rupture takes place later



Illustrating Dr. Kohlmann's paper.

than in other types of tubal pregnancy, usually about the fourth month. The growing ovum gradually thins out the surrounding tissue and prepares either for rupture towards the abdominal cavity, or develops more toward the ostium uterinum, which opens the pressure of the enlarging ovum—graviditas tubo-uterina. This developement permits expulsion of the fetus by the natural route. A diagnosis of this kind can no doubt be questioned, but cases occur where such an explanation could be believed probable.

Treatment: Treatment of these cases has to be considered from two different viewpoints:

(1st) Is the case under observation before rupture has taken place, or (2nd) after rupture.

In the former variety, especially in the first two or three months of pregnancy, excision of the affected part of the uterus can be done, a procedure which insures the patient the possibility of menstruation—a fact of great importance in younger women.

Whether or not the remaining part of the uterus is considered sufficient for future intra-uterine development of pregnancy, can be left to the judgment of the surgeon, otherwise an excision of the tubes would remedy this difficulty.

If the sac has ruptured we have a different and more serious problem before us. In such cases the internal hemorrhage is, as a rule, very severe, and the condition of the patient is such that the method which controls bleeding quickest and best is the one to be employed. In this consideration the supra-vaginal amputation should be the operation of choice, as it can be performed, practically, without any loss of blood. Suture of the lacerated part of the uterus most probably could not be done any quicker, and the post operative union of these traumatized parts could not be expected with the same safety.

PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE.

THE BILATERAL DISTRIBUTION OF THE LESIONS IN LEPROSY IN RELATION TO THE BACTEREMIC NATURE OF THE DISEASE.*

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(From the Laboratory of Comparative Pathology and Tropical Medicine, University of Pennsylvania, Philadelphia.)

In our previous contributions concerning the bacteremic nature of leprosy[1], we have demonstrated the presence of *Bacillus lepræ* in the circulating blood collected from apparently healthy parts of the skin, finger, etc., as well as from the superficial veins of the arm. Our work was not concerned merely with the finding of extracellular acid fast bacilli in the blood, but more especially with the demonstration, in the material examined, of ***lepra cells***, which are pathognomonic characteristics of leprosy. We have also demonstrated that the presence of *Bacillus lepræ* in the blood is not an accidental occurrence, but rather a constant phenomenon, since these bacteria were found regularly in the samples of blood collected during an observation extended for six months upon the patient, in whom the disease presented the usual regular course.

We also observed, however, that while these bacilli were abundantly found in samples of blood collected from lepra, they were less numerous in the blood obtained from healthy parts of the skin and finger, and that, in samples of blood from the vein, they were so few that for their detection it was required to examine larger quantity of blood, by the acetic acid concentration method.

This method is very simple, as it merely consists in collecting about 0.1 to 1.0 cc. of blood in about 10 cc. of a 2% acetic acid solution, and after thoroughly shaking for a few minutes to com-

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington, May 9, 10, 11, 1916.

(1) **New Orleans Med. and Surg. Journal,** 1912, Vol. 65.

(2) **Amer. Journal of Tropical Diseases and Preventive Med.,** Nov., 1914.

(3) Transactions of the Eleventh Annual Meeting of the National Association for the Study and Prevention of Tuberculosis.

plete hemolysis, the mixture is centrifugalized and the sediment stained as usually done for *Tubercle bacillus.*

Attempts made to grow the micro-organism for the blood in artificial culture were unsuccessful. True, *Bacillus lepræ* was found to increase in number after one to two weeks incubation at 37°C., but whether this increase was merely apparent and due to the setting free of the numerous bacilli enclosed in lepra cells, or to a temporary actual growth on the liquid or cells of the body transplanted with the material, or both, could not be determined. However, whatever the case may have been the micro-organisms became less numerous on subseqeunt reinoculations and finally disappeared on the fourth transplantation.

Attention was also paid concerning the distribution of the lesions in leprosy in regard to the bacteremic nature of the disease, and we were especially interested to observe that, as in other bacteremic diseases, such as typhoid fever, the petechial hemorrhages in septicemia, etc., in leprosy likewise, the lesions are bilateral and often present at remarkable symmetry, a fact which can only be explained by the existence of the virus in the circulating blood.

The result of our previous works, in support of the bacteremic nature of leprosy, may be summarized as follows:

(1) *Bacilli lepræ* were found in the blood collected from the finger and from the veins, singly, in pairs or in bundles and also in the form of *lepra cells* which are pathognomonic characteristic of leprosy.

(2) The skin lesions in leprosy are bilateral, and often present a remarkable symmetry, that is, they correspond to the lesions common to other bacteremic infections.

In the present work we propose to illustrate this bilateral distribution of the lesions of leprosy with a series of photographs collected from a number of patients in different stages of the affection, which we believe is a further proof of the bacteremic nature of the disease, but it may be well first to define briefly what should be understood by bacteremic diseases.

The term bacteremia is used sometimes to denote the presence of pathogenic bacteria in the circulating blood, but a moment's thought will show how imperfect this definition may be when applied in connection with bacteremic diseases. Contrary to what was first believed, that those parts of the body not connected

directly or indirectly with the outside, such as internal organs and blood, under normal conditions were sterile, that is, free from bacteria, more recent works have demonstrated that normally pathogenic bacteria constantly get access into the blood through the normal barriers of the body, skin, mucous membranes, etc., but under normal conditons these bacteria are likewise constantly destroyed and the normal balance or normal state of health is thus maintained. Under abnormal conditons, however, such as when the antagonistic reaction of the body is weakened, or when pathogenic bacteria enter the body in disproportionate number to the normal resistance of the body, the normal balance is disturbed and the phenomenon of disease or infection is manifested.

Generally speaking, all infections are primarly a localized affection, in others the virus may enter the blood and being carried to distant parts of the body, give rise to local metastatic lesions or to a generalized infection.

As examples of localized infection may be mentioned diphtheria, which affects the mucous membrane, and tetanus which is limited to the skin and subcutaneous tissue. Examples of localized metastatic lesions are abscesses of the lungs and other internal organs, or tissue following a septic infection in other parts of the body, while a typical example of generalized infection is afforded by anthrax.

This selective or organotropic property of pathogenic bacteria of course is not a matter of chance, but due to physico-chemical egenesis of the different parts of the body, which becomes a suitable soil for the life of the invading micro-organism, and this explains why *Bacillus diphtheriæ*, for instance, affects with preference the mucous membrane, *B. tetanus* the subcutaneous tissue, *B. typhosus* and *B. choleræ* the intestine, *B. tuberculosis* the lymph gland and lymphoid tissue and *B. anthracis* the blood, etc.

Of course, no fixed rule can be applied to the above statement because of the fact that a certain group of bacterial diseases, such as most pyogenic infections, which primarily are localized affections, may invade the blood and become generalized, but this usually occurs after the body has undergone profound changes preparatory to the successful entrance and maintenance of the invading bacterium in the circulating blood of the host. Contrary to this, however, under normal conditons, that is, during the normal course of the infection, *Tetanus bacillus* is known to be

found only in the subcutaneous tissue, and while the finding of *Bacillus diphtheriæ* in the circulating blood is an exception, this is the rule regarding *Bacillus anthracis*.

The above clearly shows, therefore, that while the term *bacteremia* may properly be applied merely to denote the occasional presence of pathogenic bacteria in the blood, a *bacteremic disease or infection is one in which the pathogenic bacterium, the cause of the infection, lives, grows and multiplies in the circulating blood of the patient during the course of the disease,* and in this sense it may be said that though anthrax is a typical bacteremic disease, several other bacterial infections, which are usually localized, such as abscesses for instance, may, under certain conditons, give rise to metastasis and become a bacteremic infection.

Mention perhaps should be made in this connection regarding tuberculosis. Tubercle bacillus, of course, like other pathogenic bacteria, may occasionally enter the circulation and give metastasis in some part of the body, and even this micro-organism may persist for some days, circulating in the blood, especially during the early stage of acute miliary tuberculosis, before it becomes lodged in a suitable soil (lympathic gland or lymphoid tissue) for its growth and multiplication in this locality, but that the tubercle bacillus lives, grows, and multiplies in the circulating blood, in other words, that, tuberculosis is a hemic infection, awaits confirmation. In this respect tuberculosis resembles cancer and sarcoma in so far as tubercle bacillus, cancer and sarcoma cells may occasionally enter the blood and give rise to metastasis, but this does not prove that these are bacteremic affections.

It is a common clinical experience to see that in all cases of bacteremic infections, when accompanied with skin eruptions, such as typhoid fever, hemorrhagic septicemia, etc., these eruptions are bilaterally distributed, or generalized, because of the fact that the virus, living in the circulating blood, is distributed more or less equally throughout the body. Based on this, it would naturally follow that if leprosy is a bacteremic infection, the lesion common to the disease should follow the same order of distribution. This is clearly demonstrated in the accompanying illustrations.

BONE CHANGES IN LEPROSY.*
(An Abstract)

By JAMES A. HONEIJ, M. D.,

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The bone changes with which we are concerned involve mainly the hands and feet, that is, the phalanges, metacarpal and metatarsal bones. Other bones are affected, but cannot be studied so readily as the bones of the hands and feet, where the changes are seen earliest in the disease.

In both types of leprosy, the nerve and nodular changes in the consistency, size and shape of the bones take place.

1. **Case N. Q.** Typical early nodular leprosy. No ulceration. Very slight infiltration of skin.

The earliest changes that I have been able to observe have been either thinning of the epiphysis, especially the distal ends, or a decrease in circumference of the distal phalanges of the little finger.

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held at Washington, May 9, 10, 11, 1916.

In general the bone changes to be observed range from slight thinning or early atrophy to advanced changes with total absorption of phalanges, marked inflammatory action in bone, distortion and fractures. Changes may begin in the periosteum, articular surfaces, corticalis, or medullary canal, and any combination of these changes or all of them may occur in the same set of bones. It is not possible to tell which bones are the first or most likely to suffer, but it can be stated that the thumb bones are rarely affected. Also, it is not possible to ascribe any particular type of bone change to any particular type of disease.

2. **Case L. P.** Typical nodular leprosy. No ulceration. Infiltration of skin.

In the nerve type of leprosy the changes to be expected would be atrophic ones and in the nodular type, inflammatory or hypertrophic changes. As a matter of fact, this can be reversed and both types of changes may also be observed in the one form of leprosy.

In early cases the bones are nearly always affected in the epiphysis, leaving the shaft fairly normal. With absorption of

lime salts and disintegration of the bone, fractures occur. These are painless and unaccompanied by callus formation. Ankylosis of joints also occurs.

The causes for these disturbances have been cited by many investigators and hardly two agree. The difference of opinion, however, regarding the changes found in the bones of nodular and nerve leprosy and the cause of such changes is more apparent than real if one considers that the study of most of the cases has been at different stages of the disease, of different types, and in general with limited material. Authorities are agreed, however, that the constant inflammation and infiltration of the nerves, in the

3. **Case I. U.** Typical nodular leprosy. No deep ulceration. Infiltration of skin.

nerve form of leprosy, definitely interfere with their function. Bacilli are found in both the central and peripheral nervous system and consequently bear a direct relationship to the changes in the bones, if they are in the area controlled by the affected nerves. Bacilli in the blood and bone marrow also undoubtedly are the cause of some inflammatory disturbances and resulting changes in the internal structures of the bones. Periostitis due to organisms

that have found their way in through ulceration of the tissues, although admitted and observed, do not concern the bone changes in which we are interested.

The question which has prompted the investigation concerning the changes in the general absorption of lime salts early in the disease, with changes in the size, shape and consistency of the bones, is whether the two recognized causes of nerve affection with atrophy and rarefaction of the bones and inflammatory disturbances, directly due to the acid fast bacilli, are sufficient. Personally, I do not believe so.

4. **Case M. M.** Typical anesthetic or nerve type of leprosy. Deep ulcer under base of great toe one year previous. No other ulceration of tissues of foot. No infiltration of skin.

The bone changes seen so early and which are so gradual, particularly in the nodular type of leprosy, are not in this way sufficiently accounted for.

I would therefore suggest—as my investigation is at this time not yet completed—that factors of metabolism play an important role in our particular problem and in leprosy in general.

OBSERVATIONS ON THE TREATMENT OF LEPROSY WITH SPECIAL REFERENCE TO CHAULMOOGRA OIL.*

By RALPH HOPKINS, M. D., New Orleans, La.

It is said in India that chaulmoogra oil has been used in the treatment of leprosy for several thousand years, which period of time seems ample to determine whether or not its use is beneficial; yet among observers there remains a difference of opinion as to its value. The evidence in favor of chaulmoogra oil presented in this paper is the result of comparison between this and other methods of treatment in 269 cases extending over a period of fifteen years, during which time it has been the author's privilege to be attending physician to the Lepers' Home of Louisiana, in which institution the cases cited were treated. A study of these cases shows the difficulty of a critical analysis of the value of chaulmoogra oil, and may in part explain the reported difference of opinion as to its therapeutic value.

A proper analysis should include the changes that usually occur in leprosy untreated, as compared with such changes as may occur in cases under treatment.

Cases removed to the Home by the health authorities from some place of concealment show almost immediately some improvement in their general health. Better hygienic conditions alone would account for this, irrespective of treatment. The confinement incidental to concealment, with the mental harassment due to fear of detection, compare unfavorably with conditions of fresh air and outdoor life at the Home. In addition the patients at the Home have expert nursing, are well housed, well nourished, and furnished with abundant facilities for daily hot baths. Even cases admitted in the terminal stage in whom the prognosis is hopeless, frequently show remarkable, though temporary, improvement. Such surgical conditions as perforating ulcers, suppurative bone conditions, tendon infections, and superficial ulceration are ameliorated by cleanliness and proper care without any specific medication directed at a cure of leprosy. Improvement in these conditions may wrongly be ascribed to any drug which may happen to be administered when such cases first come under treatment. One observer has stated that almost anything that is done

*Read at the thirteenth annual meeting of the American Society of Tropical Medicine, held in Washington May 9, 10, 11, 1916.

for a leper on his admission to an institution seems to improve his conditon.

Lepra fever, too, frequently obscures the effects of medication. Attacks of this fever with accompanying changes in old skin lesions, and the formation of new nodules may occur as often as three or four times in one year in any case of skin leprosy. It lasts from a few days to a month or more, and the temperature may attain 106° F. resembling that of septicemia in its remittent character. During the course of the fever some of the chronic nodules show evidence of acute inflammation, becoming painful, red, and swollen. In severe cases bullæ may develop on the surface of inflamed tubercules, and there may be suppuration and abscess formation. Inflammatory nodules, usually lenticular in shape and resembling erythema nodosum, may also appear in areas of skin previously free from lesions. These acute lesions are evanescent in character, each nodule lasting only a few days, and being succeeded by others in different locations. In fact, during an attack of lepra fever the aspect of leprosy, from the viewpoint of the progress of the disease is entirely masked. After an attack, improvement may be noted in the chronic lesions when compared to their condition before the occurrence of the fever. This improvement seems to be a sequence of the fever and not so depend on medication.

In the observation of the treatment of anesthetic cases with the circinate type of macules, it must be borne in mind that this type of eruption is not nearly so persistent as the infilltrated macular patches associated with the tubercular form. Nor are any of the macular lesions that appear on the covered parts of the body, as persistent as the nodules found on the exposed surfaces. Advanced and even terminal trophic cases are often found to be entirely free from macules, though in the incipiency of this type, circinate macules are usually present. The fading and disappearance of macules may take place in the course of a great length of time without any medication.

It is not unusual for mixed cases presenting well defined nodules to become in the course of time purely anesthetic or trophic. The disappearance of the nodules and infiltrated patches in the skin takes place very slowly while the nerve symptoms are growing progressively more aggravated. Again trophic cases may become arrested spontaneously. We have at the Home several of such

cases who have had leprosy for over forty years, with no aggravation of their condition in the last eight or ten years. These cases are badly mutilated and their extremities are anesthetic, but no further mutilation is taking place, and they give promise of not having their lives shortened by leprosy. Such cases obviously cannot respond to medication.

The most notable of the intercurrent diseases that have an influence on the course of leprosy is erysipelas. Many observers have noted marked improvement in both nodules and macules and we have record of instances in which even ulcers of long standing have healed after recovery from erysipelas. In the last year there have been 22 cases of erysipelas, nine of whom showed improvement in leprous lesions following the attack. In one case an ulcer on the leg of ten years' standing has almost entirely healed and in another, tubercular case, the nodules have completely disappeared. The 13 cases not improving were in the terminal stage of leprosy or approaching it. An exception to this was one case with very slight evidence of leprosy.

The favorable changes enumerated above as possible of occurrence independent of medication are overbalanced by the almost uniform tendency of leprosy to grow progressively worse to the point of such destruction of tissue that outwardly a mere semblance of humanity remains. In terminal cases such permanent destruction has taken place in nerve, eyes, skin, vocal cords, respiratory passages and bones, that even if the bacillary cause could be entirely removed, there would remain but a wreck with symptoms unabated.

Taking all the vicissitudes of the disease into consideration with the fact that chaulmoogra oil at the best acts very slowly, the conclusion is reached that the larger the number of cases reported the more accurate the deductions therefrom. It is hoped that the cases presented below may add to the sum of knowledge.

Methods of Administration.

Until recently the only method of administration of chaulmoogra oil at the Home has been by mouth in doses gradually increasing from three to one hundred or more drops, in capsules three times daily, before or after meals. Strychnin has also been given in 1-60 gr. doses three times daily and hot baths at least once a day. This is the method devised by Dr. Isadore Dyer and

reported by him relative to his cured cases.* Subsequent to favorable report from the United States Bureau of Health for the Philippines of its use hypodermically, chaulmoogra oil has been used hypodermically at the Home (1) as an emulsion in weak alkaline solution, (2), with camphorated oil and resorcin according to Dr. Mercado's formula, (3) in an emulsion with gum arabic and water, Dr. Vahram's method.

The two great disadvantages of the internal administration of chaulmoogra oil, are, the slowness of its action, and the nausea and vomiting occasioned in many cases. The oil is disagreeable to take even when vomiting is not provoked, and the slowness of improvement leads to discouragement on the part of the patient. Incipient cases usually suffer no disturbance associated with pain, itching, or other discomfort to urge them imperatively to persistence in treatment or to inform them subjectively of improvement or the reverse. In spite of every effort to encourage the taking of the oil a certain percentage of cases are found to be intolerant of even small doses while others who are capable of retaining therapeutic doses refuse to pursue so disagreeable a routine. Those cases who are not too far advanced and who systematically take sufficient doses show a large percentage who have improved. In fourteen instances this improvement has progressed to a point of complete disappearance of all lesions and bacillary evidence. So strong has the conviction become that chaulmoogra oil is beneficial that it has become a routine practice to administer it to every case on admission to the Home, and to increase the dose according to the tolerance and dispositon of the individual. Cases cited below as treated by other methods are generally those to whom the oil could not be given internally.

Results of Internal Administration.

Eliminating terminal cases, there have been in the Home since September, 1901, when treatment with chaulmoogra oil was systematically commenced, 117 advanced and 104 incipient cases of leprosy. Treatment with the oil internally has been urged on all these cases according to their tolerance, with the following results. Of the 104 incipient cases:

14 have been discharged cured.
4 apparently cured are held for observation.

*The Cure of Leprosy. **N. Y. Med. News,** July 29, 1905.

1 case admitted pregnant.
1 Mexican was deported shortly after admittance.
20 remain at the Home in improved condition, are still improving.
12 remain apparently arrested.
20 have absconded in improved condition.
5 were admitted too recently for any change in condition.
11 absconded too shortly after their admittance for any change.
1 absconded improved and returned in terminal stage.
2 absconded and returned in advanced condition.
4 have grown worse and are in advanced stage.
5 have died of intercurrent diseases.
4 became terminal and died.

104 total number of incipient cases.

Deducting from the total of 104 incipient cases, those to whom a fair trial of the oil could not be given, namely:

5 cases too recently admitted.
1 case deported.
11 absconding shortly after admittance.
5 dying of intercurrent diseases.

22 total, leaves 82 incipient cases treated for a sufficient time for results to be apparent.

Of these 82 cases

17% have been discharged cured.
4% remain at the Home all lesions having disappeared.
24% remain at the Home in improved condition.
24% have absconded in improved condition.
14% remain at the Home apparently arrested.
8% have grown worse.
4% have died.

Of the 117 advanced cases,

11 remain at the Home in improved condition.
5 apparently arrested have not grown worse in the last 5 to 15 years.
8 absconded in improved condition.
16 absconded too shortly after admittance for any change.
5 admitted too recently for any change.
25 remain in the Home with but little change for better or worse.
12 absconded and returned in the terminal stage.

6 have become terminal cases are now at the Home.
8 died of intercurrent diseases, leprosy not having progressed.
21 became terminal cases and died of leprosy.

117 total number of advanced cases.

Deducting from total of 117 advanced cases, those to whom a fair trial of the oil could not be given, namely:

5 too recently admitted to show any change.
16 absconding too shortly after admittance to show any change.
8 dying of intercurrent diseases.

29 total, leaving 88 cases treated for a sufficient time to show results. Of these cases—

12% remain at the Home in improved condition; 5% arrested, have not grown worse in the last 5 to 15 years; 9% absconded in improved condition; 28% remain but little changed for better or worse; 20% became terminal; 23% died in terminal stage.

Time Factor.

The length of time elapsing between the commencement of treatment and date of discharge in cured cases was as follows:

(1) 4 years 3½ months; (2) 8 years 2 months; (3) 2 years; (4) 7 years; (5) 1 year 5 months; (6) 3 years 7 months; (7) 2 years; (8) 3 years 4½ months; (9) 2 years 5 months; (10) 2 years 7 months; (11) 6 months; (12) 1 year 2 months; (13) 1 year.

Making an average time of approximately three years. As much as possible discharged cases have been kept under observation. One discharged case relapsed after developing tuberculosis, was readmitted to the Home and died. This case is not included in the calculation of the average time in the treatment of cured cases.

Chaulmoogra oil has also been used internally as an emulsion in weak alkaline solution in a few cases. No difference has been noted as to the digestive disturbances occasioned as compared to the crude oil. Chaulmoorgra oil emulsifies very readily.

Hypodermical Use of Chaulmoogra Oil.

In the annual report of the Bureau of Health for the Philippines Islands, published in 1913, a method of hypodermic injec-

tion of chaulmoogra oil was reported with histories of two cases discharged from the hospital free from all evidence of leprosy. The prescription used was that of Dr. Mercado, House Physician at the San Lazaro Hospital, and consists of

Chaulmoogra oil	60cc
Camphorated oil	60cc
Resorcin	4 grams

Mix and dissolve with aid of heat on a water bath, then filter.

To the first case the foregoing mixture was given—: during the first month 2cc every three days, during the second month 5cc every eight days, during the third month 10cc every eight days. This large dose was badly borne and was reduced to 5cc, which amount was injected every eight days for the following three months. At the end of which time all lesions had disappeared and it was impossible to demonstrate the leprosy bacillus. All treatment was then discontinued for a period of one year, during which time the patient remained negative microscopically.

In the second case the same mixture was given in doses as follows: During the first month 1cc was injected into the buttocks every eight days. The next month 10cc were injected every four days, then one dose of 15cc was given. After that 5cc were injected every six days. Great improvement in her condition was reported at this time, and she was microscopically negative for leprosy. All treatment was then discontinued for nine months. Microscopical examinations were made at frequent intervals, but always with negative results. At the time of her discharge all macules had disappeared, but there was still some suffusion of the countenance. This initial report has been supplemented by further favorable results obtained by this method.

Subsequent to this report an emulsion of chaulmoogra oil in weak alkaline solution was used at the Home hypodermically in eight selected cases representing different types and stages of the disease. Difficulties that could not be overcome were the irritation provoked locally, and the failure of the oil to be absorbed In two cases cysts formed at the site of injection the fluid contents of which were evacuated 1 1-2 years after injection.

Following the discontinuing of the weak alkaline emulsion at the Home the Mercado method was used in nine cases, and is being continued at the present time. The oil seems to be readily absorbed, and marked improvement in one tubercular case has been

noted, though the injections have been given for a period of one month only. No local bad results have been noted with small doses up to the present time.

Dr. Vahram's Emulsion.

Dr. Vahram, in an effort to overcome the gastric disturbances, and pain or abscesses incidental to the administration of chaulmoogra oil by mouth or hypodermically, has devised an emulsion of sufficient fineness for intravenous injection. He states that the globules of this pseudo-solution are of such fineness as to approach the dimensions of colloid "grains." He thinks that the fineness of these particles and in consequence the multiplication of the active surface, should produce intense medicinal effects.

He reports the following results with animals. Rabbits and dogs: toxic dose o gr. .0004 per kilogram of animal. Human therapeutic dos o gr. .00002 per kilogram, which is one-twentieth of the toxic dose of a dog or rabbit. With doses of 0g. .0002 per kilogram, a light hemolysis was obtained. No effect on a rabbit heart (isolated) was obtained with a dose of o gr. .001 per liter of Ringerloke solution. In a dog o gr. .0005 per kilogram of animal caused a marked fall in blood pressure and a slowing of respiration. After these experiments on animals, intravenous injections were given to two cases of leprosy referred to him by Dr. Brocq by whom the results were controlled. He has noted no reaction following the injections, and states that the therapeutic results have been very encouraging. From the first there has been a returning of sensation, a progressive diminution of nodules, and the disappearance of open lesions. These two cases have received thirty injections each given every second day. In the first case, who presented open lesions and a complete general anesthesia, the open lesions almost entirely healed at the end of the twentieth intravenous injection and the tenth hypodermic injection. Sensation, completely restored tc him, commenced to manifest itself after eighth injection. In the second case, which was presented to "La Societe Medicale des Hopitaux de Paris," all anesthetic patches had almost entirely disappeared, the nodules were notably diminished, and the general health was improved.

Dr. Vahram's method of administration starts with an intravenous injection, of 1 cubic centimeter of the emulsion increasing 1-10 of a cubic centimeter at each subsequent injection up to 2

cubic centimeters. This dose is maintained to the twentieth injection. After this the intravenous injections are discontinued, and the emulsion may be given hypodermically, commencing with 1 cubic centimeter and increasing 1-2 cubic centimeter up to 5 cubic centimeters, which dose is maintained up to the twentieth dose. The intravenous method may then be recommenced. Dr. Vahram remarks that the dose of chaulmoogra oil which had therapeutic action was very small. The pseudo-solution of chaulmoogra oil is an emulsion of the oil in the presence of gum arabic (0 gr. .0144 of the gum and 0 gr. .00072 of the oil) which after dessiccation, while cold, is submitted to a long porphyrization, and put in suspension in the initial volume of liquid and sterilized at a temperature of 110° C.

Two cases at the Home have been under treatment with Dr. Vahram's emulsion since April 30, 1916. One case is an incipient macular type, and the other a tubercular type approaching the terminal stage.. In both cases the emulsion is being given hypodermically with good results. It is proposed to try the intravenous method if results justify this more dangerous method of administration.

I have found that the oil globules are undoubtedly reduced to very fine dimensions, appearing under high magnification about the size of ordinary cocci, and showing Brownian movement in a hanging drop. The emulsion flows very easily through a fine hypodormic needle and is readily absorbed. I have also found that the intravenous injection of this emulsion in toxic doses produces in dogs under ether the same fall in blood pressure as described by Dr. Vahram. With a much coarser emulsion of chaulmoogra oil in gum arabic, or in weak alkaline solution I could obtain no fall in blood pressure under similar conditions. The argument that the finely divided state makes the emulsion more active seems well taken. In both of the cases receiving treatment at the Home there has been no inflammation following the injections. In the incipient case there has been some decrease in the size of the macules, and a fading of their color; in the advanced case several nodules have disappeared leaving pits. Many have decreased in size, and the general health and appearence of the patient seems to have improved.

Neither of these cases have been under treatment long enough to justify conclusions, but results obtained so far are encouraging.

Other Methods of Treatment Used at the Home.

Emetine, 4 cases, no change in condition.

Methylene blue, 3 cases: one negro, two white, blue discolorization of modules in both white cases. Slight improvement in one white case.

Duval's vaccin, 6 cases, reaction general and local, improvement, local abscesses of long duration following injection.

Duval and Gurd's immunized sheep serum, 1 case, intense general reaction followed by some improvement.

Iodides, apparently aggravate condition.

Bromides, 6 cases, improvement in superficial ulcer of long standing in one case, otherwise no change.

Sulphuric acid, internally, 4 cases, marked inflammatory reaction in the lesions in two cases.

Alkalies, no change.

Lanolin, no change.

Olive oil, food value only.

Normal horse serum, 5 cases in year 1901, improvement at first, but improvement did not continue.

Chlorate of potash, 6 cases, no permanent improvement.

Sodium salicylate, useful for neuritic pains, no effect on leprous lesions.

Icthyol, internally, no effect.

Modified erysipelas vaccin, 16 cases, improvement in one case.

Glandular extracts, 1 case, improving.

Of all these remedial agents, other than chaulmoogra oil, the one that has best stood the test of time is Fowler's solution, given during attacks of lepra fever, in increasing doses. With a condition as variable in its severity and duration as lepra fever, therapeutic values are difficult to determine, but with its use in a large number of cases, the conviction has grown strong with the patients, nurses and myself that arsenic in this form is very useful in diminishing the duration and severity of the attacks. Its use, when not contraindicated, has become almost a routine practice for this condition.

NEWS AND COMMENT.

MEETING OF THE MEDICAL ASSOCIATION OF THE SOUTHWEST.—The eleventh annual meeting of the Medical Association of the Southwest will be held at Fort Smith, Arkansas, October 2, 3, 4, 1916. Preparations for the meeting are well under way, but there is still room for a considerable number of papers on the Scientific program. For any information, address Dr. F. H. Clark, Secretary, El Reno, Okla.

A NEW CORPORATION.—Announcement has been made of the formation of a new corporation, called the Victor Electric Corporation, which has purchased the business of the Victor Electric Company, the Scheidel-Western X-ray Company, the Macalaster, Wiggin Company and the Snook Rœntgen Company. The purpose of the new corporation is to continue the respective business policies of the above mentioned concerns, and by elimination of waste, and the development of co-operative service, be better able to serve more efficiently the interests of the medical profession.

PREVENTION OF INFANT MORTALITY.—The American Association for the Study and Prevention of Infant Mortality will hold its seventh annual meeting, October 19-21, at the Hotel Wisconsin, Milwaukee.

FEMALE WAR HOSPITAL.—The Women's Hospital Corps of London has established a hospital which will accommodate 500 soldiers. This hospital is in Endell street, near Covent Garden market, and the entire staff, from cooks to surgeons, are women. The staff includes eight surgeons, under the direction of a chief surgeon, a dental surgeon, an ophthalmic surgeon, a pathologist and X-ray operator, an anesthetist, and a number of physicians.

MORTALITY DUE TO CHILDBIRTH.—Zinke, in the Bulletin of the Lying-In Hospital of New York, states that during the past fifty years Germany has lost 400,000 women from puerperal causes, while the loss in the United States during the same period is estimated at 1,000,000. Our population during the past forty-five years has increased by 40,000,000, while in Germany the increase is about half this figure. That much of this

is really preventable is shown by the fact of the absence of mortality in well-conducted maternities, when all conditions can be controlled.

SURGEON'S ODD BEQUEST.—By the will of Dr. J. William White, of the University of Pennsylvania, a convict discharged each year from the Eastern penitentiary, "who is most likely to be helped to permanently honest ways" is to receive a sum of money, and a similar gift is to be made to a discharged patient of the Philadelphia hospital to aid him in earning "a decent livelihood." Large bequests were made to various hospitals in Pennsylvania. A trust fund of $150,000 is created as a permanent endowment fund for the establishment of professorships of surgical research at the University of Pennsylvania.

UNIVERSITY OF CALIFORNIA GETS CHILDREN'S HOSPITAL.—The Children's Hospital, which was founded and controlled for more than thirty years by women physicians, has passed under the management of the University of California, whose medical students will practice among the little patients. A factional fight has existed for a long time among the board of directors, a new element wishing to oust those in control. By a vote of 9 to 8, the old order of things was overturned and a five-year agreement with the university was authorized.

WAR REDUCES MADNESS.—According to medical inquiry, it would seem that the reduction of insanity since the war began has been considerable. Dr. William Graham of the Belfast Lunatic Asylum remarks: "It is not the great tragedies of life that sap the forces of the brain and wreck the psychic organism. On the contrary, it is the small worries, the deadly monotony of a narrow and circumscribed existence, the dull drab of a life without joy and barren of an achievement, the self-centered, anæmic consciousness—it is these experiences that weaken and diminish personality and so leave it a prey to inherited predispositions or to the "slings and arrows of outrageous fortune.'"

THE BOARD OF DIRECTORS OF THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH announces the following promotions and appointments: Dr. Alphonse R. Dochez, hitherto an Associate in Medicine, has been made an Associate Member. Dr. Henry T. Chickering has been appointed Resident Physician in the hospital, succeeding Dr. Dochez. Dr. Louise Pearce and Dr.

Frederick L. Gates have been made Associates (Pathology and Bacteriology). Dr. Oswald Robertson, Assistant (Pathology and Bacteriology); Mr. Ernest Wildman (Chemistry). The new appointments are: Dr. Rohda Erdman, Associate in the Department of Animal Pathology; Dr. Rufus A. Morrison, Assistant in Medicine and Assistant Resident Physician; Dr. John Northrop, Assistant in the Department of Experimental Biology: Dr. Jean Oliver, Assistant in Department of Pathology and Bacteriology; Dr. Ernest W. Smillie, Fellow in the Department of Animal Pathology, and Dr. William D. Witherbee, Assistant. Mr. Hardolph Wasteneys, hitherto an Associate in the Department of Experimental Biology, has become Associate Professor of Pharmacology in the University of California.

Bogus Circulations in Medical Journals.—The American Medical Directory contains in its recent issue a complete printed list of medical journals in the United States. There were two demands made when calling for the information in this list: first, whether the journal conformed to the standards of the Council on Pharmacy and Chemistry; and second, to furnish a sworn statement of circulation. In both cases the facts were to be printed in black faced type in the directory. The statistical results show that out of 257 medical journals and bulletins only 133 conform to the standards; 196 of them accept advertisements, 61 do not. Only 55 of the 257 give sworn statements of circulation. Of those that accept advertisements, 41 give sworn statements of circulation. Only 38 out of the 196 that accept advertisements conform to the standards and furnish sworn circulations. Of these 38 journals, 28 are the official state medical journals.

Bad Teeth Cause Rejection.—Of those who applied for enlistment in the National Guard, thirty per cent. are said to be rejected on account of bad teeth. It is hardly necessary to furnish another proof that the work of caring for children's teeth needs the co-operation of parents, physicians and dentists in order for it to be sufficiently effective.

The Three "C's" of Caring for Milk.—The three "C's" for the proper care of milk in the home, according to the United States Department of Agriculture, are: *Clean, Cold* and *Covered*. "Milk is a highly perishable food and, the length of time it will remain sweet and safe, especially for children,

depends almost entirely upon the constant care it receives from cow to consumer. If the producer and dealer have done their part, clean, safe milk will be delivered, thoroughly chilled, to the consumer. Bottled or other milk should not be allowed to remain in a warm place, as on a sunny porch or in a warm kitchen. In hot weather, the milkman should put the milk directly in the refrigrator, or in some tight container with insulated walls that keep the heat from getting rapidly to the cold milk."

ARREST CHICAGO'S MORONS.—Following the announcement that the Rockefeller Institute would begin a survey of the city of Chicago, August 1, to ascertain how many residents are subnormal mentally, it was declared by a number of alienists and physicians that should this survey be carried out half the population of the city would be sent to institutions for defectives. The institute proposes to empower the police to arrest anyone looking like a moron, half-wit, or any other unfortunate. "Should this suggestion be carried out, some of our most noted physicians, surgeons, bankers, brokers, editors—in fact, half of the population will have to flee the city for safety," said Dr. Wm. D. Krohn, noted alienist.

PRIZE FOR THE BEST ARTIFICIAL HAND.—A large sum of money has been received by the Royal Surgical Society of London to be offered as a prize to the inventor of the best artificial hand. An exhibition of persons who have worn the hands for at least six months will have to be made by the competitors.

CHANGE OF NAME.—The International Health Commission of the Rockefeller Foundation has changed its name to International Board of the Rockefeller Foundation.

INFANTILE PARALYSIS KILLS FOOT-BALL PLAYER.—Frank McCormick, center in 1906 on Villa Nova football team and picked on the All-American team that season, died on July 17 from infantile paralysis. McCormick was 36 years old.

NEW ORLEANS EYE, EAR, NOSE AND THROAT HOSPITAL.—The annual report for 1915 of the Eye, Ear, Nose and Throat Hospital, which was recently issued, shows the good accomplished and the progress made by that institution. The objects of the hospital are to save life and to stop the spread of disease. The fight against diphtheria has been so successful that the mortality from that disease was reduced from 36 per cent to 1½

per cent. There were 47,943 consultations given, 7,698 cases treated, 1,969 operations performed. The number treated from the parishes was 2158. Of the 674 indoor patients treated, only 4 died. The institution, however, is greatly handicapped by lack of sufficient means and it is the hope of the board of trustees that the State of Louisiana will restore the appropriations to that institution which it formerly enjoyed. The parishes of Ascension, Lafourche and Terrebonne each contributed $100 to the hospital, and other sums were received from various sources.

To Prevent Blindness.—A small carton of tubes is being sent by the Louisiana State Board of Health, to every registered midwife, containing five drops each of a 1 per cent solution of silver nitrate. This solution is to be used to prevent blindness in new-born infants, and simple directions accompany it so that there is no excuse for error on the part of anyone. It has been found that all the cases of blindness in the institutions for the blind in the United States about one case in four is the result of neglecting the eyes of new-born infants. The solution if intelligently used will reduce blindness by 25 per cent.

Theories and Facts.—It would seem that scientists and even those who are "next to things" flounder in their theories and run amuck in their prophecies. Osler, with his age limit for usefulness, has seen his theory disproved by the fact that nearly all the men who are handling the European war are in their sixties or over, and even contradicts his own theory in himself. Now, Metchnikoff, the great bacteriologist and biologist, by his death when in his early seventies, has proven the fallacy of another theory which he advanced, that sour milk was the secret to old age and if taken would insure the user a long life. Facts, and not theories, are what we want these days.

A Prenatal Restaurant.—Miss Mabel Parker, of New York, is the originator of an idea, which, if all goes well, will play a big part in the history of the nation. She proposes an organization to be called the Prenatal Diet and Health Association, and its slogan will be "Save the child and you'll save the city." The purpose of this organization is to provide a noon meal for the mothers-to-be for five cents. This meal is provided for six months or more before the baby is born. The food is carefully selected with consideration for values, and the menus

vary. Miss Parker believes that infant mortality from preventable causes after birth, which has been so reduced by milk stations and other agencies, could be even greater reduced when mothers of the tenements have been properly nourished before the birth of their children.

PERSONALS: At the Detroit meeting of the Association of American Teachers of Diseases of Children, Dr. L. R. DeBuys, of New Orleans, was elected president for the coming year.

Dr. Marcus Feingold, Professor of Ophthalmology, School of Medicine, Tulane University, has been summering in Denver, Colorado. News has been received that the postgraduate course in ophthalmology conducted at the Medical Department of the University of Colorado has been greatly benefited by the presence of Dr. Feingold, who has been conducting some very interesting demonstrations in ocular pathology.

The degree of Doctor of Ophthalmology was conferred on Dr. Feingold by the University of Colorado.

Dr. Frederick K. von Ilberg, noted laryngologist, who had the care of the Kaiser's chronic throat affection, died in Berlin, July 9.

Dr. Charles Chassaignac (New Orleans) spent the month of August with his family in Swannanoa, North Carolina.

Dr. C. C. Bass was summoned to New York, together with other scientists, to discuss the infantile paralysis situation during the week ending August 5.

Dr. Edmond Moss has returned from his vacation spent in Plymouth, Mass.

Prof. L. Albert Neisser, of Breslau University, the famous dermatologist, died in Berlin, July 31.

Dr. John B. Murphy, the noted Chicago surgeon, died after an acute illness.

REMOVALS: Dr. M. H. Edens, from Verden to Sand Springs, Oklahoma.

Dr. L. F. Lorio, from Lottie to Lakeland, Louisiana.

BOOK REVIEWS AND NOTICES

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by H. R. M. Landis, M. D., and others. Vol. II. Twenty-sixth Series. 1916. J. B. Lippincott Company, Philadelphia.

The present volumes of the well known series maintains its established reputation. The articles cover a wide variety of subjects all timely and all eminently practical. Those interested in problems growing out of the great war in lessons learned therein will welcome the article on Tetanus by Dr. J. B. Young and the one on Orthopedic Problems Presented by Erropean War, by Dr. R. B. Osgood.

I. I. Lemann.

The Practical Medicine Series. 1916. Vl. 1. **General Medicine.** Edited by Frank Billings, M. D. The Year Book Publisher. Chicago.

This little year book continues to serve a useful purpose. The topics it reviews are well chosen and adequately covered. The practitioner who will spend a few hours with it will find himself well repaid by the clear information he will gain of the newest investigations and clinical observations in the field of medcine. Of particular interest is the statement by the editor, Dr. Billings, that he has for nine years made use of the prolonged absolute fasting period in the treatment of diabetes—the method of treatment now associated with the name of Frederick Allen, who has brought forward substantial experimental data upon which to base it.

Lemann.

Rules for Recovery from Tuberculosis. A Layman's Handbook of Treatment. By Lawrason Brown, M. D. Lea & Febiger. Philadelphia and New York.

This little book will fulfill the purpose for which it was intended. The author "has attempted to make clear the whys and wherefores of many rules ordinarily given patients in an oracular manner, for he believes that the day has come when the physician should look upon the patient, not as an ignorant child, but as a human being endowed with more or less mature intelligence, as one, in fact, who has a right to demand an explanation of the way certain effects follow certain causes." Dr. Brown's long experience in the great Trudeau school has qualified him to write with authority and this booklet of the

a b c's of therapy in tuberculosis may be heartily commended for the perusal and study of the practitioner as well as of the patient. The simplicity and clarity of the presentation have added to its interest and readability.

Lemann.

The Medical Clinics of Chicago. May, 1916. Vol. 1, No. 6. Published Monthly by W. B. Saunders & Co. Philadelphia and London.

This number has a number of very good lectures. Dr. Hamburger's lecture on the Allen Treatment of Diabetes brings additional clinical evidence as to the value of the treatment. Some of the articles as notably that on "The Relation of the Upper Respiratory Tract to Metastatic Injections" and the one on "Rachitis" are quite extensive. It seems to the reviewer that the purpose of the publication will be better carried out by brief practical talks rather than by long monographs which have been developed beyond the limits of an ordinary chatty lecture.

Lemann.

Painless Childbirth, Eutocia and Nitrous Oxid-oxygen Analgesia. 1916. By Carl Henry Davis, A. B., M. D. Forbes

This is an interesting little volume of 135 pages in which the author presents a concise history of the development of anesthetics and discusses in a most convincing manner the value of nitrous oxid gas in obstetric practice. The objections to "twilight sleep" are related and the growing necessity of relieving pain in childbirth is emphasized.

Anyone who really desires to reduce the discomforts of delivery will find much useful information in this little book.

Miller.

A Manual of Gynecology and Pelvic Surgery for Students and Practitioners.. By Roland E. Skeel, A. M., M. S., M. D. P. Blakiston's ons & Co. Philadelphia, 1916.

This is an excellent handbook of 680 pages in which the author presents a concise practical working knowledge of gynecology, with special emphasis on Diagnosis and Treatment. The author is to be congratulated upon his ability to condense so much material in a small volume and, at the same time, avoid the ordinary compend style of composition.

The illustrations are well selected and excellently drawn.

It is seldom that an author attempts to introduce references with any degree of system in any but large textbooks. Dr. Skeel has selected a number of references for each chapter, with the idea of having students do collateral reading. The idea, while not new, is excellent, and with a library at the

command of students this plan of teaching would soon supersede the old textbook plan so general at present.

Miller.

Surgical and Gynecological Nursing. By Edward Mason Parker, M. D., F. A. C. S., and Scott Dudley Breckenridge, M. D., F. A. C. S. J. B. Lippincott Company. Philadelphia. 1916.

This volume is rather more pretentious than the average textbook on nursing. The effort throughout the book has been to present to the student and graduate nurse an essentially practical statement of those procedures in her professional work that fall within the realms of general surgery and gynecology.

An unusual amount of space has been given to illustrations, especially of surgical instruments, in order that nurses might have the opportunity of familiarizing themselves with the preparation and names and instruments before they are thrown into the busy duties of the operating room.

In addition to the surgical and gynecological technic, there are valuable chapters on the use of fractional doses in hypodermic medication, weights and measures, solutions and formulæ.

The book should find a place in schools for nurses and also be a ready handbook for the busy, operating-room nurse.

Miller.

Obstetrics. By Edwin Bradford Cragin, A. B., A. M., M. D., F. A. C. S. Lea & Febiger. Philadelphia. 1916.

The announcement of a book on Obstetrics, written by Edwin B. Cragin and based upon the statistical results of 3,500 deliveries in the Sloane Hospital for Women, will meet with the hearty approval of the medical profession. The Sloane Maternity has been one of the foremost instiutions of America for many years, and Dr. Cragin as the medical head is largely responsible for the excellent system and results obtained in this service.

One of the chief aims of the author was to furnish a textbook for undergraduates in which the subject is covered concisely and from which unnecessary discussion is eliminated. It requires only a superficial examination to show how successfully this has been accomplished, and, furthermore, that the book is essentially the personal views and methods of the author.

The profession is indebted to Dr. Cragin for his effort to present statistics in obstetrics. The wealth of material at his command has been carefully studied and systematically recorded, which gives his opinions special weight when he discusses the treatment of Placenta Previa, based upon 223 cases,

181 cases of Tranverse Presentations, or 150 cases of Cesarean Section, etc.

So many commendable features appear in this book that only a few may be mentioned. The author is especially gifted in his ability to make clear the points in differential diagnosis, which makes the work of special value to both students and practitioners.

The chapters on Placenta Previa and Toxemia of Pregnancy are alone worth the price of the book. His conservative position as to the indications of Cesarean section in both placenta previa and eclampsia should be seriously studied by those who are inclined to make this operation a cure for all obstetrical ills. While he believes in emptying the uterus promptly in eclampsia, if the patient fails to improve under treatment, he relies upon bags and manual dilatation more than upon cutting operations.

We rarely find in a textbook so much space devoted to lactation and infant feeding as has been devoted to these subjects by Dr. Cragin. However, his views are well worth the space.

There is no doubt but that Dr. Cragin's book will promptly take rank among the best textbooks on modern obstetrics, because of its excellent arrangement, the concise but at the same time full discussion of the subject matter, and, most important of all, the book represents the personal views of one whose ripe judgment and conservative tendencies have been known and respected for many years.

Miller

Diseases of the Digestive Tract and Their Treatment. By A. Everett Austin, A. M., M. D. D. St. Louis. C. V. Mosby Company. 1916.

Another book on "Diseases of the Digestive Tract," we hear some one say. Yes; and withal a good one.

In great measure, the author handles the branch of medicine as here presented from the viewpoint of physiological chemistry. To the reviewer's way of thinking this is a logical and perfectly correct point of view.

The book is written in an easy style and avoids dealing with anything superfluous. When necessary, the author shows an independence of thought, which, however, is in line with the best opinions of the day, and in accord with the results reached by careful workers in this branch of medicine. His conclusions, therefore, must be adjudged rational from our present day light on the subject.

Dr. Austin's book does not savor of the usual compilation. Authors have been consulted, as a matter of course, but, for the most part for "observations upon the rarer diseases which have never come under the eye of the author. This ample,

but not too voluminous book, is printed with type on heavy paper, and the illustrations are numerous. The book is not padded and may be considered a good guide. No marked innovations are made, but the volume is sound to the core, and we are pleased to give it our approval.

Storck.

The Memoirs of a Physician. By Vikenty Veressayer. Translated from the Russian by Simeon Linden. With an Introduction and Notes by Henry Pleasants, Jr., M. D. Alfred A. Knopf, Publisher. New York.

Not a great while ago we were reading a review of the life of John of Gaddesden, full of a vast experience saturated with the utmost egoism. The work before us is strong in its contrast. Above all it is so utterly human that any one who may read it must gather many many lessons. Says the author:

> I am but an average practitioner, with average ability and average knowledge. I find myself entangled in a web of contradictions, and I am utterly powerless to solve many of the hard problems which, unfortunately demanding an answer, arise before me at every step. * * * I am about to describe my sensations on my first acquaintance with medicine, what I expected of it, and how it actually affected me.

Then the author proceeds to give his audience an intimate story of his experiences as a medical student and as a young practitioner. While the chagrin of an acknowledged ignorance is still acute (for the author says he has practiced but seven years), a sincere self analysis is undertaken, in which successes are noteworthy for their omission, while all sorts of mistakes are related. The men who hold higher places in the medical life of the author come in for a large share of commentary and while there is a very thorough criticism of methods and of practice, there is at the same time the highest expression of respect and consideration for those who have deserved it.

Like the "Confessions" of Rousseau, there is, beyond the mere detail of a technical biographic sketch, a remarkable literary style, of which is added a distinctly broad knowledge of historic and contemporaneous service in medicine, which makes the book a decided contribution.

To the practitioner who is old enough to have mellowed in his work, to the student who has his professional life before him and to any man or woman who wishes to know anything of the vicissitudes of an honest doctor, we commend this book for careful perusal. Read once, it will be read often.

Dyer.

Surgery in War. By Alfred J. Hull, F. R. C. S., with a Preface by Sir Alfred Keogh, K. C. B., M. D. P. Blakiston's Sons & Co. Philadelphia.

This is really a handbook for the army surgeon, dealing with practical preparedness and with the detail of direct service for the surgeon either at the field or at the base hospital. Modern conceptions of infections are presented and a clear relation of bacteriology to warfare surgery is maintained throughout The various regions of likely injury are discussed and the injuries of the nerves also find place.

There are numerous illustrations—diagrammatic and photographic—all adding to the value of the book.

The work is timely and among many publications on war surgery already out, it will have a place of its own as co-ordinating modern practices and as being easy of use because of its compact, readable form.

Dyer.

The Practical Medicine Series. 1915. Under the Editorial Charge of Charles L. Mix, A. M., M. D. Vol. IX. **Skin and Venereal Diseases.** Edited by Oliver S. Ormsby, M. D., and James H. Mitchell, M. D., and **Miscelleaneous Topics.** Edited by Harold N. Moyer, M. D. The Year Book Publishers. Chicago.

The bulk of this volume is devoted to skin diseases and syphilis and the review for the year of 1915 is quite comprehensive. Serotherapy as well as advanced ideas in bacteriological study of obscure dermatoses find large place. The historical status of syphilis is presented, with an inclusion of the life of Fournier, who died in 1914. The material is varied and both academic and practical.

Dr. Moyer's section is a well assorted review of near medical topics, educational, economic and sociologic, all of which are of timely interest. Altogether this volume of the Practical Medicine Series is well up ot the standard of the publication.

Dyer.

Progressive Medicine. Volume XIX. Nos 1 and 2. Edited by Hobart Amory Mare, M. D., A B., Noted. Leighton F. Appleman, M. D.. Lea & Febiger. Philadelphia and New York.

These two volumes of the current year, contain a wide assortment of topics, arranged by such surgeons as Gerster, Frazier, Muller (Geo. P.), Clark (John G.); such physicians as Stengel, Ruhrah, Crandall (Floyd); and with special subjects: of the Eye (Jackson, Edw.), Ear, Nose and Throat (Geo. B. Wood and T. L. Saunders).

The wealth of material afforded in each group of subjects cannot be determined except by their perusal, but the service

of such a review is great. The chapter on Infectious Diseases alone (Ruhrah) covers about 125 pages, and both ordinary and exotic diseases are discussed.

The mass of topics prevents any detailed review, but it is a matter of privilege to note that it is just such standard quarterly digests of contemporaneous medical literature which permit the general practitioner to keep up with modern progress in the profession.

Dyer.

The Kinetic Drive; Its Phenomena and Control. By George W. Crile, M. D. W. B. Saunders Company. Philadelphia and London.

Reduced to a lecture before the New York Academy of Medicine, the author submits an hypothesis which he proposes as an unsolved problem and to which he applies preliminary observations and some experimental data. In substance the human is the subject of unbalance due to loss of proper transformation of energy as developed by the natural processes. Such unbalance results in morbid phases, light of severe, reflecting in the individual in various acts. The incoordination of the organic functions, failure in controlling emotions, effort, and the elimination of acid by-products, so provoking infection, auto-intoxication and the like, constitutes an elementary but inherent force, which operating may be called the **Kinetic drive.** The author conceives that the activating organs of the kinetic system are the adrenals and the thyroid; and that by reducing their size their activity may be reduced; further that by severance of the cervical sympathetic, the association of these organs with the brain may be reduced and in this way the kinetic drive may be interrupted.

Operative experiment is exampled to show the result of the theory put in practice in such conditions as diabetes, Graves' disease, etc., and the cases related are remarkably interesting.

Altogether the kinetic theory as advanced by Crile is full of interest—offering many phases of correlated reasoning. The various combinations of human functions capable of joining to create an unbalance and to establish a kinetic drive are numerous and if the remedy is one reducible to a mathematical relation of certain organs to certain syndromes, then there is a solution ready for many of the diseases now within the borderland of obscurity.

The matured work of Dr. Crile in this field will be awaited with keen anticipation.

Dyer.

Pellagra. An American Problem. By George M. Niles, M. D., W. B. Second Edition. Saunders Company. Philadelphia and London.

This new edition of an important American contribution to pellagra has evidence of a number of revisions. The chapters on etiology and treatment especially have been materially enlarged and brought up to date.

The chapter on symptomatology is full of practical descriptions largely based on more recent observations. The book is full of the author's personal observations, evidently from a wide experience with the disease. There seems to be no attempt to make the review of contemporary opinions complete, but rather to offer a practical opinionative essay on subjects covered by the title of the book.

Dyer.

Elementary Bacteriology and Protozoology for Nurses. By Herbert Fox, M. D. Second Editon. Lea and Febiger. Philadelphia and New York.

While there is a great deal more contained in this book than most nurses have any need to know and certainly much more than any nurse has any reason for learning, this cannot detract from the work of the author, who has made an excellent presentation of a difficult subject in a way which is both authoritative and thorough. The text is logically arranged, and covers the field of bacteriology rather extensively. Protozoology is not so fully considered, for obvious reasons. The chapters on the destruction of bacteria by chemicals and on immunity are important for all nurses—and incidentally, as they are put, most doctors might profit by reading them.

The illustrations are apt and excellent.

Dyer.

Diagnostic Methods, by Herbert Thomas Brooks, A. B., M. D. Third edition. C. V. Mosby Company, St. Louis.

This little guide is evidently intended for the practical technical training of the laboratory student and the everyday physician. It describes simple routine and easy methods and so fulfils the purpose of the author—himself a trained teacher. *D.*

PUBLICATIONS RECEIVED

LEA & FEBIGER. Philadelphia and New York, 1916.

Progressive Medicine. Edited by Hobart Amory Hare, M. D., assisted by Leighton F. Appleman, M. D. June 1, 1916.

Rules for Recovery from Pulmonary Tuberculosis, by Lawrason Brown, M. D. Second edition, thoroughly revised.

Infections of the Hand, by Allen B. Kanavel, M. D.

F. A. DAVIS COMPANY. Philadelphia and London. 1916.

Practical Massage and Corrective Exercises, by Hartwig Nissen.

Handbook of Venesection, by Walton Forest Dutton, M. D.

Christianity and Sex Problems, by Hugh Northcote, M. A. Second edition, revised and enlarged.

A Textbook of Practical Gynecology, by D. Tod Gilliam, M. D., and Earl M. Gilliam, M. D. Fifth revised edition.

PAUL B. HOEBER. New York. 1916.

Cerebellar Abscess: Its Etiology, Diagnosis and Treatment, Including Anatomy and Physiology of the Cerebellum, by Isidore Friesner, M. D., and Alfred Braun, M. D., F. A. C. S.

Clinical Disorders of the Heart Beat, by Thomas Lewis, M. D., B. Sc., F. R. C. P. Third edition.

Ultra-Violet Light, by Hugo Bach, M. D. Authorized translation from the German.

Practical Points in the Diagnosis and Treatment of Heart Disease, by E. M. Brockbank, M. D., F. R. C. P. Second editon.

Modern Medicine and Some Modern Remedies, by Thomas Bodley Scott, with a preface by Sir Lauder Brunton, F. R. S.

The Examination of the Urine and Other Clinical Side-room Methods, by Andrew Fergus Hewat, M. B., Ch. B., M. R. C. P. Fifth edition.

W. B. SAUNDERS CO. Philadelphia and London, 1916.

The Clinics of John B. Murphy, M. D. Mercy Hospital, Chicago. Edited by P. G. Skillern, Jr., M. D. June, 1916.

Diseases of the Eye, by George de Schweinitz, M. D., LL. D. Eighth edition.

Collected Papers of the Mayo Clinic. Edited by Mrs. M. H. Mellish. Volume VII, 1915.

The Kinetic Drive: Its Phenomena and Control, by George W. Crile, M. D.

A Textbook of Pathology, by W. G. MacCallum.

WM. WOOD & CO. New York, 1916.

The International Medical Annual. Thirty-fourth Year, 1916.

J. B. LIPPINCOTT COMPANY. Philadelphia and London, 1916.

Surgical and Gynecological Nursing, by Edward Mason Parker, M. D., F. A. C. E., and Scott Dudley Breckinridge, M. D., F. A. C. S.

Accessory Sinuses of the Nose, by Ross Hall Skillern, M. D. Second edition, thoroughly revised.

International Clinics. Volume II, Twenty-sixth Series, 1916.

Obstetrics—Normal and Operative, by George Peaslee Shears, B. S., M. D.

P. BLAKISON'S SONS & CO. Philadelphia. 1916.

Mentally Deficient Children, by G. E. Shuttleworth, B. A., M. D., and W. A. Potts, M. A., M. D. Fourth edition.

W. M LEONARD. Boston. 1916.

A Manual of Practical Laboratory Diagnosis, by Lewis Webb Hill,, M. D.

THE YEAR BOOK PUBLISHERS. Chicago. 1916.

The Practical Medicine Series. Volume III: **The Eye, Ear, Nose and Throat.** Edited by Casey A. Wood, C. M., M. D., D. C. L., Albert H. Andrews, M. D., George E. Shambaugh, M. D. Series 1916.

The Practical Medicine Series. Volume ii: **General Surgery.** Series, 1916.

C. V. MOSBY COMPANY. St. Louis, 1916.

Diseases of the Digestive Tract and Their Treatment, by A. Everett Austin, A. M., M. D.

Skin Cancer, by Henry A. Hazen, A. B., M. D.

Diseases of the Skin, by Richard L. Sutton, M. D.

WASHINGTON GOVERNMENT PRINTING OFFICE. Washington, D. C. 1916.

Public Health Reports. Volume 31, Nos. 23, 24 and 25.

Report of the Department of Health of the Panama Canal. April, 1916.

United States Life Tables: 1916. Department of Commerce, Bureau of the Census.

Public Health Reports. Volume 31, Nos. 26, 27 and 28.

Report of the Department of Health of the Panama Canal. May, 1916.

United States Naval Bulletin. July, 1916.

The Federal Registration Service of the United States: Its Development, Problems, and Defects, by Cressy L. Wilbur, M. D.

MISCELLANEOUS:

Report of the Board of Administrators of the Louisiana Hospital for Insane of the State of Louisiana. March 31, 1916.

Hippocrates Jones. His First Confinement Case and What Came of It, by Walter Graves, M. D.

The Associated Out-Patient Clinics of the City of New York. Third Annual Report, 1915.

The Twenty-sixth Annual Report of the Eye, Ear, Nose and Throat Hospital of New Orleans, La. January 1, 1915, to December 31, 1915.

Report of the Board of Administrators of the Shreveport Charity Hospital to the General Assembly of the State of Louisiana. From April 1, 1914, to April 1, 1916.

General Education Board, Report of Secretary. 1914-15.

REPRINTS:

The Action of a Coal Tar Disinfectant of Hog Cholera Virus, by W. E. King and R. H. Drake.

An Effective Apparatus for Evaporating Aqueous Extracts by Means of a Current of Air; Relative to the Total Nitrogen and a-Amino Nitrogen Content of Pepsins of Different Strengths, by T. B. Aldrich.

The Education, Licensing and Supervision of the Midwife, by J. Clifton Edgar, M. D.

The Building of the Nation, by Nicholas Murray Butler.

Hay Fever: Its Cause and Prevention, by William Scheppegrell, A. M., M. D.

Dementia Precox Studies, by Bayard Holmes, M. D., and Julius Retinger, Ph.D.

A Form of Heart Disease Due to Disease of the Gall-Bladder, by Bayard Holmes, M. D.

A Freak of Nature, by O. A. Farwell.

A New Trypanosoma of the Vampirops Lineatus, by Juan Iturbe, M. D., and Eudoro Gonzales, M. D.

Apuntes Sobre la Bilharziasis en Venezuela, por el Dr Jesus Rafael Risquez.

Conservation of Vision and Prevention of Blindness, by G. E. de Schweinitz, M. D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for July, 1916.

Cause.	White	Colored	Total
Typhoid Fever	5	1	6
Intermittent Fever (Malarial Cachexia)	1	1	2
Smallpox	1	3	4
Measles	.....	.....	.....
Scarlet Fever	.....	.....	.....
Whooping Cough	.....	.....	.....
Diphtheria and Croup	.....	.....	.....
Influenza	.....	.....	.....
Cholera Nostras	.....	.....	.....
Pyemia and Septicemia	.....	1	1
Tuberculosis	31	62	93
Cancer	22	6	28
Rheumatism and Gout	1	.....	1
Diabetes	1	.....	1
Alcoholism	1	.....	1
Encephalitis and Meningitis	8	2	10
Locomotor Ataxia	3	.....	3
Congestion, Hemorrhage and Softening of Brain	21	2	23
Paralysis	3	3	6
Convulsions of Infancy	2	.....	2
Other Diseases of Infancy	24	8	32
Tetanus	.....	1	1
Other Nervous Diseases	5	1	6
Heart Diseases	55	43	98
Bronchitis	.....	3	3
Pneumonia and Broncho-Pneumonia	11	14	25
Other Respiratory Diseases	2	.....	2
Ulcer of Stomach	1	3	4
Other Diseases of the Stomach	4	0	4
Diarrhea, Dysentery and Enteritis	24	14	38
Hernia, Intestinal Obstruction	3	1	4
Cirrhosis of Liver	7	7	14
Other Diseases of the Liver	3	1	4
Simple Peritonitis	.....	.....	.....
Appendicitis	7	3	10
Bright's Disease	17	21	38
Other Genito-Urinary Diseases	17	8	25
Puerperal Diseases	6	3	9
Senile Debility	2	1	3
Suicide	5	.....	5
Injuries	19	13	32
All Other Causes	7	6	13
Total	319	232	551

Still-born Children—White, 24; colored, 26; total, 50.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 13.87, colored, 27.29; total, 17.49. Non-residents excluded, 15.46.

METEOROLOGIC SUMMARY. (U. S. Weather Bureau.)

Mean atmospheric pressure 29.91
Mean temperature ..... 82.
Total precipitation ..... 6.78 inches
Prevailing direction of wind, southwest.